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ABSTRACT

This literature review focuses on the state of current knowledge concerning alcohol and other drug (AOD) abuse among people with developmental, learning, hearing, visual, and mobility impairments. The review is divided into four main sections. The first section addresses the limits of the available research-based information. The second section summarizes the evidence regarding the nature and prevalence of disabilities within the United States population, and of AOD use within disabled populations. The third section discusses correlates of use and risk factors. The fourth section provides an overview of prevention and intervention needs of this population as well as related issues. These are discussed in terms of the legal context, the social response, service barriers, current initiatives, generic versus specialized programs, AOD education, parent education and involvement, service provider education, and counter-enabling education. Group-specific needs are also considered. Detailed abstracts and author addresses are provided for 22 studies. An additional 136 references are listed, as are 7 substance abuse education and prevention materials and 23 programs and organizations (listed by state). Also provided is a listing of references by subject. (DB)

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SUBSTANCE ABUSE AMONG YOUTH WITH DISABILITIES

Prevention Research Update

Number Seven / Summer 1990

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Prevention Research Update

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Prevention Research Update is a quarterly current awareness service, prepared by the Western Center for Drug-Free Schools and Communities, which summarizes recent research on adolescent drug abuse and its prevention. Each issue abstracts and reviews the prevention implications of new research dealing with a major topic of concern in the field, placing the new information in the context of past findings. The goal is to help bridge the communications gap between the researcher, the practitioner, and the general population, by disseminating research findings in an accessible manner and providing an introductory review of their significance. Abstracts are arranged alphabetically by first author's last name. Preceding the abstracts is an overview discussion in which references to abstracted studies are identified by an asterisk (*). References to all documents cited are located following the abstracts. Copies of the Updates are available from all the Western Center sites, listed on the last page of this issue.

SUBSTANCE ABUSE AMONG YOUTH WITH DISABILITIES

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OVERVIEW

INTRODUCTION

People with disabilities have been identified as one of the nation's largest special populations at high risk of alcohol and other drug abuse (AOD) problems in the nation. Over the past decade, concerns over this problem have grown markedly among service providers in the fields of alcohol and other drug abuse, special education, and disability rehabilitation. In this Update, we will examine the state of current knowledge about AOD use and prevention among people with developmental, learning, hearing, visual, and mobility impairment

Within the public schools, preventing and intervening with AOD abuse among disabled youth has created new challenges for special education programs, mandated by the federal Education for All Handicapped Children Act of 1975 (PL94-142) to provide "specifically designed instruction, at no cost to parents or guardians, to meet the unique needs of a handicapped child." Johnson (1988) refers to the "undocumented reports, particularly from urban school systems, of a steady increase in the number of referrals for special education in which substance abuse is a significant factor involving either the student referred or others in the student's environment."

However, despite growing recognition of the problem, little research has been conducted on it. For example, an early article on alcohol use among people who are deaf (Isaacs, Buckley, and Martin 1979*:464) noted: "A survey of the research literature...found no research studies on the use of alcohol among the deaf (nor any other handicapped group, for that matter)....It is a sobering fact that we know more about the alcohol patterns of a few thousand Lepcha of the Himalayas than we do about the estimated 13 million hearing-impaired persons in our country." In a more recent review, Sylvester (1986:16) found that the situation had changed little: only 3 of 47 articles he identified regarding alcohol and deafness were empirical, the rest being theoretical, summaries, or advocacy.

Furthermore, much of the existing data is inconsistent. As a result, the picture of the problem and how to address it is incomplete. Much remains to be done to understand how disabilities affect AOD use and vice versa, and caution must be used in making any generalizations. But, taken as a whole, an understanding is beginning to emerge of the nature and extent of the problem, as well as of the issues and factors that need to be taken into consideration in prevention and intervention efforts.

The available literature indicates that, compared with the general population, overall AOD use among people with disabilities may be no more prevalent. However, there is evidence that the level of use may be hidden and that levels of heavy use may be disproportionately high among many of them. The challenge to the field is better determining how to identify those who are most at risk. While there are common problems, barriers, and needs faced by all people with disabilities, different disability groups, subgroups, and individuals face different risks for substance abuse and experience the consequences of substance abuse in different ways. These differences have important prevention implications.

Furthermore, what places any user in this population at high risk are the potential adverse effects of use. This risk results partly because of the added problems posed by disabilities but also because far less has been done to address AOD abuse in this population. Although federal legislation guarantees people with disabilities equal access to prevention and treatment programs, this is not only an under-researched population but an underserved one.

This review is divided into four main sections. The first addresses the limits of the research-based information that is available. The second section summarizes the evidence regarding the nature and prevalence of disabilities within the US population, and of AOD use within disabled populations. The third section discusses correlates of use and risk factors. Finally, we provide an overview

to the prevention and intervention needs of this population and related issues.

LIMITS OF THE INFORMATION

Determining the extent and nature of AOD use among disabled youth is severely hampered by the lack of research-based information. Contributing to this lack of information has been the reluctance among some people to acknowledge that substance abuse exists within this population, in part out of concern over adding the stigma of substance abuse to the stigma of disability.

Even more problematic has been the lack of training and knowledge among substance abuse and disability professionals about each other's field. The subject of this Update is located at the intersection of several different though related fields: AOD prevention and treatment, disability rehabilitation, special education, and disability rights. These fields are based in different professional disciplines, serve different populations, operate in different institutional settings, are governed by different legislative mandates, and even have somewhat different terminologies. These divisions are not rigid, of course, and there is considerable overlap, but the differences are great enough that communication between the fields is not always transparent. Although communication and cooperation are beginning to occur, the study of substance abuse and disability remains a field in early development, still seeking a clear sense of common intent and identity. As discussed below, these divisions have also formed a prominent barrier to effective prevention and intervention services.

Methodological difficulties have also hampered research efforts. These include the difficulty and cost of locating sufficiently large numbers of noninstitutionalized populations (institutionalized settings can influence drug use in ways that cannot be generalized), more stringent human subjects requirements, resistance of programs themselves to research, problems of data collection among the communication- and reading-impaired, and the problem of identifying misusers with diagnosed disabilities (Moore and Polsgrove 1989).

As a result, within the research that has been conducted, there are large gaps in the coverage, gaps which have significantly influenced the scope of this review. Most of the literature focuses on adults rather than children or adolescents; on alcohol rather than other drugs; and on treatment and rehabilitation issues rather than prevention or education. In addition, little attention has been directed at gender differences.

Regarding AOD use among disability types, most research has dealt with mobility impairment (mainly spinal cord injury), visual impairment, hearing impairment, developmental disabilities (mainly, the educable mentally retarded), and learning disabilities (mainly attention deficit hyperactivity disorder). Little or no information was found on other types of disabilities such as cystic fibrosis (see Stern, Byard et al. 1987), epilepsy (Little and Gale 1980/81; Stoil 1989), and emotional disturbances (Clements and Simpson 1978).

NATURE AND EXTENT OF THE PROBLEM

Although the words handicapped and disabled are often used as synonyms, in the professional literature the two are distinguished. It is important to distinguish between "disability" and "handicap." In the professional literature, a "disability" is a medical condition that interferes with a person's development, sight, hearing, dexterity, mobility, learning, or psychological adjustment. A handicap is a situational and social condition that consists of a barrier or obstacle to the disabled person's ability to achieve his or her maximum level of functioning. A person who uses a wheelchair is handicapped in travelling throughout the city not because of the disability but because of the inaccessibility of buses. The disability cannot be changed, but the handicapping condition can be.

The Rehabilitation Act of 1973 (PL 93-112), using the word "handicap" as a synonym for disability, defines a severe handi-

cap as a condition "which requires multiple services over an extended period of time and results from amputation, blindness, cancer, cerebral palsy, cystic fibrosis, deafness, heart disease, hemiplegia, mental retardation, mental illness, multiple sclerosis, muscular dystrophy, neurological disorders (including strokes and epilepsy), paraplegia, quadriplegia, and spinal cord conditions, renal failure, respiratory or pulmonary dysfunction" (quoted in De Loach and Greer 1981:271). Under Section 504 of the act, a handicapped person is defined as "anyone with a mental or physical impairment that substantially impairs or restricts one or more major life activities."

Substance Abuse as a Disability

A rapidly emerging issue in the field is whether youth who are AOD abusers can, by that status alone, be classified as disabled and therefore eligible for special education programs. Regarding AOD abuse itself, a legal opinion from the U.S. Attorney General in 1980 concluded that a person with alcoholism or drug addiction fit the definition of a handicapped person and was thus entitled to the civil rights protections of Section 504 of PL93-122. The U.S. Office of Education, however, ruled that, under the Education for All Handicapped Children Act of 1975 (PL94-142), chemical dependency did not fall in the category of "other health impaired" and thus that programs for chemically dependent youth did not qualify for special education funds. As Williams (1990:73) observes, "states must operate in compliance with federal regulations [i.e., Section 504] but are free to define other handicapping conditions to be included for special education services. States may include chemical dependent students in their State plans or State regulations as recipients of special education services."

In a survey of state special education regulations, Williams (1990:75) found that none of the 36 states that responded listed chemical dependency as a separate classification, and only eight states indicated that identified chemically dependent students could be included under one of the existing special education classifications.

In short, the legal status of students who are substance abusers is complicated, varies among states, and has yet to be definitively settled by the courts.

Disability Prevalence Estimates

Estimates of the number of Americans with disabilities vary, depending on how disability is defined and on differences in survey techniques. The conventional estimate for the total number of institutionalized and noninstitutionalized disabled Americans is 36 million (Bowe 1978:17). Since this figure is based on survey results from the 1970s, 40 million would probably be a more reasonable estimate for today. Given the "graying" of our population and the advances in medicine that make recovery from injury or disease more likely, the proportion of the population that has some type of disability is expected to grow over the next decades.

For the noninstitutionalized population, data from the National Health Interview Survey, conducted annually by the National Center for Health Statistics, indicate (based on the three-year average for 1983-1985) that 14% of the civilian population have some degree of limitation in their ability to perform activities suitable to their age (32.5 million persons). According to the Bureau of the Census, 20% of noninstitutionalized persons age 15 and over are limited in their ability to perform selected physical functions (37.3 million persons) (Kraus and Stoddard 1989:2-3).

For young people specifically, results of the National Health Interview Survey for 1983-1985 indicate that 5% of children and young people (ages 0-17) have some degree of chronic limitation in their major activity (play, attending school). Another indication of the size of the youth population is the number in special education classes. The general rule of thumb is that about 10% of a given K-12 school population is comprised of children in special education programming (Johnson 1988). In the 1986-1987 school year, 4.4 million children and youth (ages 3-21) or 11% of total public school enrollment

were being served by federally funded special education programs. The largest group were children with learning disabilities (44%), followed by those with speech impairment (26%), mental retardation (15%), and emotional disabilities (9%). The remaining disabilities (hearing, visual, orthopedic, multiple, and other) each made up less than 2% of the total (Kraus and Stoddard 1989:30, 32).

AOD Use

Articles published in the early 1980s provided only gross estimates of the extent of substance abuse (mainly alcohol) among people with disabilities. Beginning about 1980, results from AOD surveys of disabled populations began to appear, but the picture they presented is confusing. Some studies have found that substance abuse was higher among people with disabilities than among the general population, whereas others have found equal or lower levels of use.

Disabilities in General

Gilmore (1988:50) observes that, whereas estimates of AOD problems in the general population range from 8% to 10%, estimates among people with physical disabilities are higher and more variable, ranging from 10% to 60%.

Thurer and Rogers (1984) found that 53% of a sample of physically impaired clients rated help with AOD problems as a "substantial need" or "great need" among the physically impaired.

According to Hepner, Kirshbaum, and Landes (1980/81:12), 25% of the clients served by the Center for Independent Living in Berkeley, California, abused alcohol and/or other drugs. In the recently completed California Alcohol, Drug and Disability Study (CALADDS) of AOD use and problems, interviews were conducted with 123 clients in agencies that provide services to people with various types of disabilities. Nearly one-fourth (24%) of the respondents believed that they had an alcohol or other drug problem, with an additional 6% indicating that they were not sure and 15% reporting that they formerly had an alcohol or drug problem (de Miranda 1989:16-17, 20).

Alcohol. Several studies have indicated higher levels of alcohol use by people with disabilities than by the general population. Rasmussen and DeBoer (1980/81*) reported that 48% of the clients in a rehabilitation program in Michigan in the late 1970s used alcohol 12 or more times a year and 23% used it more than once a week. Also, a high percentage of the clients (62%) reported at least one symptom indicative of alcoholism, which was significantly higher than estimates of problem drinking in the general population.

A comparison of a sample of male university students and nonacademic staff with physical disabilities and a control sample who were nondisabled found that the men with a disability scored significantly higher on most measures of alcohol use and associated problems (Motet-Grigoras and Schuckit 1986*).

In a large-scale statewide survey (n=3,216) of alcohol use among people with various disabilities in Wisconsin, the rate of moderate or heavy alcohol use was 35% among the disabled respondents, compared with 25% in the general population (Buss and Cramer 1989*:26).

In the California Alcohol, Drug and Disability Study, 70% of the respondents drank alcohol, with 17% drinking daily (de Miranda 1989:16-17).

Finally, in a study of Medicare enrollees discharged from hospitals in 1985, the rates of discharges for alcohol-related diagnosis was twice as high among the disability patients as among the general population of patients (93 vs. 44 per 10,000 population). However, this hospital sample can not be considered representative of people with disabilities generally; it also consisted mainly of people ages 45-64 (Dufour, Bertolucci et al. 1989*).

In contrast to these findings of high levels of alcohol use, other surveys have found equivalent or lower rates among the disabled population, compared with those of the general population. Kawaguchi and Butler (1982*) reported that respondents with disabilities were no more likely to drink or to

drink heavily than were nondisabled respondents. Among students surveyed by Dean, Fox, and Jensen (1985*), alcohol use was significantly lower among those with disabilities than those without (76% vs. 88%). Meyers, Branch, and Lederman (1988*) concluded that among adults with major disabilities who were living independently, alcohol use was "moderate," with nearly one-third not using alcohol. However, 16% of the sample reported 15 or more drinking occasions a month and a similar percentage drank four or more beers at each occasion, which suggests a relatively high proportion of problematic drinkers (Moore and Polsgrove 1989:389).

Other Drugs. There is even less data regarding use of drugs other than alcohol. It is, however, equally inconsistent. Kawaguchi and Butler (1982*) found that, contrary to the case with alcohol, disabled respondents did have a significantly higher prevalence level for the use of other drugs (licit and illicit).

In contrast, Dean, Fox, and Jensen (1985*) reported that illicit drug use, as with alcohol use, was lower among the disabled students (18% vs. 20%), although this difference was not significant.

Meyers, Branch, and Lederman (1988*) concluded that cannabis use among adults with major disabilities who were living independently was "moderate," with nearly two-thirds abstinent.

Most recent, when asked about use of illegal drugs, 35% of the 123 respondents in the CALADDS survey said they used marijuana, 14% cocaine or crack, 12% speed or uppers, and 7% or less reported use of various other drugs. Over half (55%) said they did not use illegal drugs or provided no answer (de Miranda 1989:16-17).

Prescription Medications. Having a disability often requires that the person take medication, although recovery specialists note that many prescriptions for psychotherapeutic drugs are issued for their convenience rather than because they are essential to the person's functioning (Schaschl and Straw 1988). The ready availability of psychotherapeutic drugs, both from physicians and from other persons with access to them, increases the risk that they will be abused. The extent of such misuse, however, is poorly documented and unclear.

Dean, Fox, and Jensen (1985*) found that a significantly larger proportion of disabled college students reported taking some type of medication than did nondisabled students (47% vs. 28%). Fifteen percent of the disabled students said they would try to obtain a prescription from another physician if their attending physician took them off their medication.

In a study of substance use among spinal cord injured veterans by Kirubakaran, Kumar et al. (1986*), 42% were taking one or two prescription medications each day, and 6.5% were taking five or more. Three-fifths (61%) of the orthopedically impaired college students studied by Moore and Siegal (1989*) reported using at least one prescribed drug, and 30% used at least three medications concurrently.

Mobility Impairment

Most of the studies of AOD use among people with mobility impairments have focused on spinal cord injury (SCI). SCI is the most common cause of such impairment and which can involve loss of function in the lower part of the body (paraplegia), in one side of the body (hemiplegia), or in all four limbs (quadriplegia). Research indicates that overall levels of use are at least comparable with the general population but that this population is especially at risk of heavy use and use-related problems.

Moore and Siegal (1989*) reported levels of AOD use among college students with orthopedic disabilities that were comparable to those found in various general college population surveys. The mean score on a Problem Use scale (18 questions) was 3.3. Although comparison with nondisabled students was not provided, eleven of the disabled students scored 5 or more, suggesting that a fifth of them probably had a serious AOD problem.

Among paralyzed veterans studied by Kirubakaran, Kumar et al. (1986*), approximately a quarter of both alcohol and other

drug users indicated that use had caused a problem in their lives.

Alcohol. The Wisconsin survey found that 80% of those with spinal cord injury drank alcohol and 49% of them were moderate or heavy drinkers (Buss and Cramer 1989*:28). By comparison, a nationwide general population survey conducted in the mid-1960s found considerably lower rates of drinking: 68% drank and 25% drank moderately or heavily (Cahalan, Cisin, and Crossley 1969). The 1985 National Household Survey suggests less pronounced differences: 86% of the respondents interviewed had used alcohol at least once in their lifetime (NIDA 1988). (Unfortunately, drinking level measures between the Wisconsin and the 1985 national survey are not comparable.)

Other research indicates lower use than the general population. Among the disabled students surveyed by Moore and Siegal (1989*), 60% drank alcohol once a month or more; this compared with 70% to 80% of college students generally. In a large, nationwide sample of veterans with SCI (n=992), Kirubakaran, Kumar et al. (1986*) observed that nearly three-fourths (73%) of the veterans with SCI used alcohol, compared with nearly all (92%) of the national sample. The results for the SCI sample are probably not representative of the total population of persons with spinal cord injury, however, since the majority of the veterans in the study were over 50 years old.

Regarding problem use, however, two studies found that high percentages of persons with SCI exhibited symptoms of alcoholism: 49% on one study (Heinemann, Keen et al. 1988*) and 62% in the other (Rasmussen and DeBoer 1980/81*).

Although the various results from the above studies are not in complete agreement, it does appear that problem drinking and alcoholism among persons with spinal cord injury is high.

Other Drug Use. In one of the few studies of drug use besides alcohol, Malec, Harvey, and Cayner (1982*) examined the use of marijuana among patients with SCI, almost two-thirds of whom were between the ages of 20 and 40. Of 43 people who responded to a mailed questionnaire, 53% reported using marijuana in the past year.

Other researchers have found use rates similar to or lower than the general population. Moore and Siegal (1989*) found that 35% of college students with orthopedic disabilities used marijuana at least once, a rate similar to the rates of 25% to 40% of the general college population that have been reported. Other drug use by students with orthopedic disabilities included barbiturates (22%), amphetamines (16%), cocaine (9%), hallucinogens (9%), and narcotics (4%).

Use of various illicit drugs in the SCI sample of veterans studied by Kirubakaran, Kumar et al. (1986*) was less than 1%, whereas in the national sample use ranged from 1% for heroin to 20% for marijuana. Only 11% of the total reported any use of drugs other than alcohol in their lifetime, and current use was reported by only 3%.

AOD Use as a Contributing Factor. One reason for concern about substance abuse among people with SCI is that drug use, particularly alcohol, often appears to have contributed to, or at least predated, the injury. A study of 47 spinal cord injury patients in Baltimore found that 87% had a history of heavy use of alcohol or drugs prior to injury (O'Donnell, Cooper et al. 1981/82*). According to Sweeney and Foote (1982), over two-thirds (69%) of 36 spinal cord injury patients in a Veterans Administration hospital had a substance abuse problem before their injuries.

Unfortunately, information on substance use on the day of the injury was not reported in these studies. However, other studies have suggested a more immediate cause-and-effect relationship. Fullerton, Harvey et al. (1981) found that half of 30 SCI patients admitted that they had been drinking immediately prior to the accident and five of these reported having being intoxicated at the time of the injury. In another study, 28% of 137 patients with SCI reported consuming an average of six alcoholic drinks on the day of the injury (Frisbie and Tun 1984*). In the CALADDS survey, 15% of the respondents agreed that alcohol or drug use was a contributing factor to their disability (de Miranda 1989:19).

Among the college students with orthopedic disabilities studied by Moore and Siegal (1989*), nine (16% of the total sample) of those who scored 5 or more on a Problem Use scale reported a trauma event as the cause of their impairment. Eight of these nine also reported using alcohol or other drugs at the time of their injury.

Heinemann, Doll, and Schnoll (1989*) divided their SCI subjects with drinking problems into two groups: those whose drinking problems began before their injury (Type A, 65% of the total sample), and those whose drinking problems began after their injury (Type B, 6%). (The remaining 29% did not exhibit drinking problems either before or after injury.) Over twice as many Type A as Type B drinkers reported drinking at the time of injury (55% vs. 25%) (see also Heinemann, Goranson et al. 1989*).

Thus, if it cannot be conclusively stated that alcohol (or other drugs) was the direct and only cause of the injuries in these studies, it can nonetheless be presumed, given the effects of AOD use on judgment and coordination, that it was a significant contributor in a considerable number of cases.

Hearing Impairment

Several prevalence estimates have been made largely on the assumption that substance use is at least as great among people who are deaf as it is among the general population. McCrone (1982) placed the number of substance abusers in the deaf community at 73,000 alcoholics, 8,500 heroin users, 14,700 cocaine users, and 110,000 regular marijuana users. Steitler (1984) provided a much higher figure for problem use: she estimated that one million deaf people in the United States need professional help for substance abuse. Dixon (1987) estimated that 20% of the hearing impaired population are chemically dependent. Kearns (1989) estimated that there are 600,000 hearing-impaired alcoholics.

Anecdotal reports of service providers suggest that AOD is a major problem in the deaf community (Locke and Johnson 19881:834). Most of the research indicates average levels of use.

Isaacs, Buckley, and Martin (1979*) found that nearly all (95%) of a sample of 39 deaf persons (mean age 44) living in Rochester, New York, drank alcohol occasionally. On the basis of quantity and frequency data provided by the subjects, 10% were classified as abstainers, 5% as infrequent drinkers, 46% as light drinkers, 23% as moderate drinkers, and 15% as heavy drinkers. These distributions were not significantly different from those found in two alcohol use surveys of the general population in the New York State region. There were differences, however, within the deaf population. The heaviest drinkers were attending schools for the deaf.

Another study suggesting average AOD use was conducted by Locke and Johnson (1981*) among students at a senior high school for the deaf, although they did not provide comparison data. A majority (69%) said that they usually drank alcohol or had done so in the past. Nearly a third (32%) were currently using illicit drugs, and an additional 26% had used or experimented with drugs in the past. Significantly, however, a relatively high percentage (about 10%) of the sample had encountered legal problems from drinking, including DWI, disorderly conduct, and theft, suggesting that adolescent drinking may result in greater than usual adverse legal and social consequences in this population.

The Wisconsin survey found that hearing-impaired respondents had somewhat lower levels of alcohol use than respondents with other types of disabilities (Buss and Cramer 1989*). In this survey, although the percentage of drinkers was higher among the hearing impaired than among the total sample (77% vs. 73%), respondents with hearing impairment had lower levels of moderate or heavy drinking (33% vs. 36%) and higher levels of infrequent or light drinking (44% vs. 37%).

Although these findings indicate moderate levels of use, interpreting them is difficult because the deaf community has traditionally regarded substance abuse as a moral failing and tends to keep the problem hidden (Sylvester 1986; Sabin 1988*). As Boros (1981:1007-1008) comments, the deaf

"already have the burden of the stigma 'deaf and dumb,' now they shirk from any imposition of the added label of 'deaf and drunk.'" This may not only hide the true level of the problem but also exacerbate it by isolating abusers from information and help. Wentzer (1986), in fact, calls deaf alcoholics the doubly isolated, people with a lonely handicap and a lonely disease. This may explain why Isaacs, Buckly, and Martin (1979*) found the heaviest drinkers in schools for the deaf.

Visual Impairment

Of the disability groups reviewed here, people with visual impairment have received the least attention as regards AOD use. Peterson and Nelipovich (1983:346), assuming that the prevalence of alcoholism among the visually impaired population was equivalent to that in the general population (8%), estimated that there were at least 40,000 alcoholics among the 500,000 visually impaired people in the United States.

The Wisconsin survey suggests a more serious problem (Buss and Cramer 1989*:24). Only just over a quarter (27%) of the visually impaired respondents were abstainers (no use at all or no use in the past year), compared with a third (32%) in a national survey (Cahalan, Cisin, and Crossley 1969). A third (33%) of the visually impaired were infrequent or light drinkers, compared with 43% in the national survey. Most disturbing, 40% were moderate or heavy drinkers, compared with 25% in the national survey.

Developmental Disabilities

Developmental disabilities cover a variety of functionally limiting conditions that first appear during childhood or adolescence (mentally retarded, cerebral palsy, autism, epilepsy, and neurological disorders). Only people with mental retardation have received even limited attention as regards their AOD use. Sengstock, Vergason, and Sullivan (1975:139) noted: "Despite the lack of objective research in this area, special education teachers have reported that they have observed the problem in their classes." However, they provided no supportive evidence. Clinical reports have revealed heavy alcohol use among some mentally retarded patients (Delaney and Poling 1990:48), as did a survey of alcohol treatment practitioners by Krishef and DiNitto (1981). However, recent research indicates that mentally retarded persons do not have unusually high levels of alcohol or other drug use.

Huang (1981*) compared educable mentally retarded and nonretarded students in 12 Alabama school districts. Alcohol use (at least twice in the previous year) was considerably lower among the mentally retarded students than among the nonretarded students (32% vs. 59%). Among those who drank, occasional drinking (once a month) was higher among the nonretarded students (47% vs. 30%), while frequent drinking (once a week or more) was higher among the retarded students (46% vs. 27%).

DiNitto and Krishef (1983/84) interviewed 214 participants in mentally retarded programs in Florida. Alcohol was consumed by 52%; 33% at least once a week and 7% daily, with no indication that they suffered significantly more from alcohol-related problems than the general population (see also Krishef 1986*).

In an ethnographic study of four samples of mentally retarded adults living in the community (i.e., not in institutions), Edgerton (1986*) found that the majority seldom used alcohol or other drugs, even though many of them had access to alcohol and drugs or had parents, spouses, or friends who drank alcohol or used drugs. Those who did use did so at moderate levels, experienced few problems, and seldom became involved in alcohol- or drug-related crimes. Marijuana was the only drug besides alcohol that was used regularly. Still, 7% (13 of 181) engaged in heavy or abusive AOD use.

Similarly, interviews with 596 mentally retarded adult participants in semi-independent living programs (western USA) indicated that only 3% smoked marijuana and 56% drank alcohol, compared with estimates of 18% and 67% for the general population at the time of the interviews. Drug-related problems also appeared to be quite rare

among them (Halpern, Close, and Nelson 1986).

In an unpublished study, lower levels of alcohol use by mentally retarded persons were also reported by Blane and McGullicuddy (1990), who compared the results of substance use surveys of mentally retarded young adults (ages 17-36) in Western Pennsylvania (in 1984) and in Buffalo (in 1988) with results from comparably aged respondents in a general population surveyed conducted in 1980. Alcohol use was reported by 47% of the Western Pennsylvania sample and 62% of the Buffalo sample, compared with 67% of the national sample. Lower levels of marijuana use were also found: 4%, 15%, and 23%, respectively.

There is evidence that those who do use drugs are highly dysfunctional. Westermeyer, Phaobtong, and Neider (1988*) compared two groups of adults with mental retardations: those with a diagnosis of substance abuse, and those with no known AOD problems. Between 50% and 75% of the mentally retarded subjects with a substance-abuse diagnosis exhibited each of 21 psychological, family, and social problems associated with AOD use, whereas no more than 5% of the mentally retarded controls reported any of these problems. Furthermore, women were equally at risk as men. Even among controls, 13% (5 of 40) had evidence of pathogenic substance use.

The limited empirical data do seem to suggest that people with mental retardation have lower risk of AOD use and problems relative to the general population. However, the low prevalence of alcohol use in these studies may partly be a product of a programmatic screening effect. Halpern, Close, and Nelson (1986) found that some semi-independent living programs screened out people with substance abuse problems and some enforced a rule against home alcohol consumption. Clinical reports and the Westermeyer study would also indicate some cases of heavy use.

Moreover, there is considerable concern among specialists that the problem will worsen with deinstitutionalization. More and more people with mental retardation are moving into the community earlier in their lives and with only limited support. This may increase the potential for AOD problems, particularly since alcohol and illicit drugs can adversely interact with the prescribed medications that they often take to improve their functioning (Westermeyer, Phaobtong, and Neider 1988*). Because the bar is often the center of community socialization, Wenc (1980/81:44) expressed concern that deinstitutionalized mentally retarded persons living in the community may find relief from the loneliness and isolation they often experience by drinking there. But Krishef (1986*) found that mentally retarded adults in Florida did most of their drinking at home rather than in taverns (55% vs. 33%).

Learning Disabilities (Hyperactivity)

A variety of visual, auditory, and communication problems fall under the category of learning disability, but the one that has been the focus of research regarding AOD use is attention deficit hyperactivity disorder (ADHD). In the past, it has been referred to as just "hyperactivity." Between 4% and 10% of the general population of children exhibit ADHD. Most are boys (Kramer and Loney 1982). Not surprisingly, this is one area of disability research in which most of the literature does deal with youth.

Despite being listed in DSM-III in 1980, the specific symptoms and nature of ADHD seem to be in constant flux. There is even some disagreement over how this disorder should be categorized, although most of the literature reviewed classifies it as a learning disability rather than an emotional or behavioral disorder. The condition is primarily characterized by developmentally inappropriate inattention, impulsivity, and hyperactivity; it may also be associated with low self-esteem, low tolerance of frustration, and aggression, as well as poor academic motivation and school achievement. Hyperactivity is characterized by inattention, specific learning disabilities, poor motor and impulse control, restlessness, overactivity, and problems with aggression and social behavior.

A number of these traits have been found to be risk factors for later substance abuse.

Furthermore, several retrospective studies have found a high prevalence of childhood hyperactivity among diagnosed alcoholic adults (for a review of these, see Kramer and Loney 1981; Alterman and Tarter 1986). There is some suggestion that hyperactive young adults display more widespread and frequent drunkenness (Feldman, Denhoff, and Denhoff 1979; Hechtman, Weiss, and Perlman 1984). It has been suggested that there is a separate and identifiable subgroup of alcoholics who were hyperactive as children, perhaps related to ineffective skill at self-regulatory behavior (Moore and Polsgrove 1989:380, 394-395).

Unfortunately, the prevalence of use within the population of adolescent hyperactives is difficult to determine. The research in this field has been plagued by methodological problems. These limits include a lack of sufficient quantitative data, vague and questionable definitions of hyperactivity and other complicated diagnostic questions, lack of differentiation between drugs and between drug use and abuse, small samples with subjects too young to have developed a pattern of serious abuse, and a lack of longitudinal designs.

Blouin, Bornstein, and Trites (1978) studied later alcohol use among 60 children under age 18 who were diagnosed as hyperactive in school (out of a total sample of 119 children having difficulty in school, three-quarters male). Five years later, they used alcohol more frequently (55% vs. 20% for nonhyperactives reported drinking once a month or more) and more "heavily" and experienced significantly more drinking problems than did a matched sample of children who experienced school problems for reasons other than hyperactivity. No significant differences were evident in the use of marijuana at present or 3 years previously. However, this study had several methodological problems that call its findings into question (Kramer and Loney 1982:240).

It would appear that while hyperactive children (including those who take medications) may have a slight tendency to be more involved in substance use (mainly alcohol) than nonhyperactive children, they are not markedly at greater risk (Kramer and Loney 1982; Bruck 1985).

In a series of a major longitudinal study in Canada, Hechtman and colleagues reported that hyperactive youngsters did not differ from controls in their recent use of most illegal substances and reported less frequent use of hallucinogens (Hechtman, Weiss, and Perlman 1984; Hechtman and Weiss 1986).

Loney, Kramer, and Milich (1981) have systematically followed about 300 hyperactive boys and controls into adolescence (ages 12 to 18) and young adulthood (ages 21 to 23). Those who were more aggressive, oppositional, and conduct disordered eventually had problems with illegal drug use. Hyperactive children who did not show signs of aggressivity appeared more at risk for academic problems.

In an unpublished study summarized by Loney (1988), 33 of 95 hyperactive boys had tried marijuana. However, these 33 constitute two-thirds of those who reported actually having an opportunity to smoke it. Using subjects did not differ in their marijuana use from their classmate controls except in regard to frequent use. More subjects than controls used marijuana at least 15 days during the current month.

Hyperactive children are a heterogeneous population and it is unclear which hyperactive child will develop drug-related problems. Kramer and Loney (1982) suggested that it may be aggression rather than hyperactivity that is associated with substance use, but few studies attempted to disentangle the respective contribution of these behaviors. For example, the hyperactive subjects studied by Blouin, Bornstein, and Trites (1978) were rated significantly more aggressive than their nonhyperactive counterparts.

Studies that have held conduct disorder constant have not found a risk for alcoholism associated with hyperactivity (Alterman, Tarter et al. 1985; Tarter, Hegedus, and Gavaler 1985). In a study of 99 adult alcoholics, those that were classified as high in childhood hyperactivity experienced more problems in life and more psychologically disturbed on MMPI scales than those that were classified as low in childhood hyperactivity, indicating an underlying character

disorder. This was interpreted as supporting the existence of a separate subgroup of alcoholics who are high in childhood hyperactivity or minimal brain damage (Alterman, Tarter et al. 1985).

This suggests that studies that have found this association have been confounded by the presence of antisocial behavior in their subjects (Alterman and Tarter 1986:177). To connect hyperactivity with alcoholism will require measuring with greater accuracy the many factors that contribute to hyperactivity itself (Alterman and McLellan 1986; Moore and Polsgrove 1989:394-395). Nevertheless, few investigators have compared AOD use of hyperactives with that of other behavior or learning problem children. The failure to find significant differences between hyperactive and nonhyperactive children may be due to research design limits.

Related Problems

Finally, augmenting concerns about substance abuse in this field is that the disabling conditions themselves increase the potential negative impact of use. In this context, the fundamental question that must concern the field is not whether the overall prevalence of use within disabled populations is smaller or larger than within the mainstream population but the nature and effect of that use. Indeed, it has been stated that in many cases substance abuse causes more problems than the disability (Schaschl and Straw 1988). Several disability-related factors have been identified that place this population at greater risk of use-related problems.

First, AOD use may hamper or interfere with the process of rehabilitation. As Heinemann, Doll, and Schnoll (1989*:112) comment in regard to alcohol and mobility impairment, "unrecognized alcohol abuse may contribute to neglect of self-care and consequently, to increased morbidity. Psychological and social adjustments...may be complicated further by alcohol abuse. Continuation or resumption of drinking following personal injury also may interfere with productive physical activity by a rehabilitation client."

Second, their poor mental and physical health may make them more prone to experience adverse effects from drug use and place them at greater risk of drug-related health problems. Many handicapping conditions may suppress or delay emotional maturation, leading to more unpredictable outcomes when drugs are tried (Moore 1987:10).

Third, the high level of medication within this population raises the problem of harmful drug interactions occurring. Although this is frequently cited as a major factor placing the disabled population at high risk of AOD abuse problems, there is very little epidemiological information (Moore and Siegel 1989; O'Donnell, Cooper et al. 1981/82). In this regard, there may be differences among types of people with disabilities. For example, people with spinal cord injury may be much more likely to experience medically related drug problems than are people with hearing impairment because they are more likely to be taking more prescribed psychoactive medications.

Unfortunately, these fundamental health issues have received limited study. There is no empirical data as to the actual prevalence or role of these problems.

Conclusion

The limitations of the literature on substance abuse and disability prevent us from drawing precise and firm conclusions regarding use prevalence or levels within this population generally or within any particular subgroup. The conflicting results among the studies may be due to small samples, incompatible definitions, and other methodological problems. Because definitions of use and misuse vary from study to study and because the types of groups surveyed are so different, it is difficult to compare results across studies. Comparison among studies is also difficult because of differences in age groups, type of disability, what is being measured (e.g., use vs. abuse, ever use vs. regular use), and setting (e.g., rehabilitation center vs. independent living vs. school). More rigorous research designs using representative samples of specific disability groups and standard measures and definitions are

clearly needed to determine accurately the extent of substance within this population.

Despite these limitations, the evidence does seem to indicate that people with disabilities have substance use levels that are at least equivalent to those of the general population and for certain disabilities probably higher. However, the prevalence may well be greater than indicated because of the tendency to minimize the extent of use because of fear of being doubly stigmatized and the desire for normalization. Moreover, the problems that they experience as a result of their use are often more frequent and severe, and certainly more complex.

For most people with disabilities, alcohol appears to be the drug of choice. Misuse of psychotherapeutic drugs, often inappropriately or excessively prescribed, is also of particular concern, although there is little epidemiological research on this problem. The preference for alcohol and psychotherapeutics is probably due to the advantage of their ready availability for people who often have limited access to other avenues of drug procurement. However, this evidence could be because most of the research has focused on adults and not youth. Among people with SCI, marijuana use is also popular.

CORRELATES OF USE

Surveys examining correlates of use and risk factors, which are so frequently carried out in the general population, are largely lacking for people with disabilities, specially youth. Most of what we know about correlates and risk factors for this population is derived from professionals who write about the subject on the basis of theoretical or practical knowledge rather than empirical studies. We know very little about influences such as gender, ethnicity, peer pressure, family modeling, school performance, and personality characteristics (Moore and Polsgrove 1989). There are few studies examining adolescent attitudes and intentions regarding drugs. Determining the etiology of AOD abuse among this population is further complicated by the lack of differentiation between subgroups and the fact that abuse often precedes and may even contribute to the disability.

It appears that people with disabilities are largely influenced by the same factors that place nondisabled people at risk for substance abuse. Indeed, Moore (1987) speculates that "the handicapping conditions which may be most vulnerable [are] those which are most like the normal population in the ways that peer reinforcement, socialization, psychological states are established and maintained." These include learning disabilities, mild and moderate mental retardation, SCI, and hearing impairment.

Nevertheless, for youth with disabilities there are important differences in the degree and manner of influence among these common factors, as well as additional factors that are unique to their situation.

General Risk Factors

For the disabled population in general, three risk factors are particularly emphasized in the literature: (1) the additional stressors that the disability places on the individual; (2) the problem of enabling by others and avoidance; and (3) later age of disability occurrence. Research has also identified self-esteem, peer pressure, sensation- and fantasy-seeking as important in contributing to greater risk of use.

Stress Factors. People who become disabled as a result of injury or disease experience a variety of losses in movement or communication that require physical and emotional adjustment. According to Glass (1980/81:20-21), these losses include "skills needed for personal care and self-management, such as dressing, eating, preparing food, and personal hygiene; ability to use tools safely and effectively; and ability to communicate and control the world of information." The difficulty in performing specific tasks or the problems involved in learning how to perform tasks in new ways can result in physiological and psychological stress, social isolation, and feelings of frustration, low self-esteem, depression, anger, and helplessness.

The degree to which people with disabilities may be socially isolated is suggested by

the Wisconsin survey of disabled persons, which found that 39% of the respondents were not working, going to school, or participating in voluntary activities (Buss and Cramer 1989*:3).

Most people with disabilities do learn to adjust to their situation. They accept their limitations, they become as independent as possible, and they learn how to cope with stress and with the behavior (often insensitive) of others. But not all disabled people do adjust successfully, and in many cases the multiple stresses that they face may lead to increased levels of AOD use as a coping mechanism or as self-medication (DeLoach and Greer 1981). Most mental health/stress theories of chemical dependency would implicate self-medication as a high-risk factor for people with disabilities. AOD use may also serve as self-handicapping behavior in which, by engaging in self-defeating or self-limiting behavior, the person avoids the pain and responsibility for personal shortcomings, although no studies have examined this as a possible correlate (Moore and Polsgrove 1989:378).

For a young person with a disability, the stresses of adolescence can be particularly acute, and the temptation to use alcohol or other drugs as a form of withdrawal or as a means to cope with feelings of distress and isolation may be strong. These stresses may become even more acute when they have to leave the protective environments in which they have functioned as youth (such as special education programs or institutions) and attempt to integrate into the community (Schaschl and Straw 1988).

Enabling and Avoidance. Physicians, counselors, and family members may encourage, or at least implicitly condone, misuse of drugs, particularly dependence-producing medications. Many factors can contribute to this enabling behavior. They may believe that substance use is justified by the disabled person's need for "mourning" or lack of "normality," or they may condone use in the erroneous belief that the disabled person cannot be expected to assume responsibility for themselves. There may also be an acceptance and tolerance of a certain level of substance use as a result of the counselor's own use (Greer 1989:147-148).

Often, the only thing a physician feels able to do for a person with a disability is to prescribe a drug for pain, anxiety, or depression, even though such medication may not be strictly necessary. According to Schaschl and Straw (1988:3), providing drugs or condoning drug use may be "an effort to protect the disabled person from the reality of his/her disability....Enabling of chemical use also serves to alleviate the enabler's own uncomfortable feelings about the disability."

Family and friends may also encourage AOD abuse out of a belief that the disabled person "has a right to feel sorry for himself or he deserves to have some fun" (Francendese and Glass 1981:917). Condoning, if not actually encouraging, substance use is a way for family members to avoid hostile interactions with the disabled person and to cope with their own feelings of frustration and guilt about the disability (Greer 1986:35). In some cases, the disabled person's drug use may make it easier for family and friends to be around him or her. For example, some people with cerebral palsy or with spinal cord injury find that alcohol or marijuana reduces tremors or spasticity (see Malec, Harvey, and Cayner 1982*).

Another form of enabling consists of treating those with disabilities as exempted by their special condition from the duties and responsibilities expected from the nondisabled population. For instance, adolescents who are deaf may learn or be told by others that they are unlikely to be prosecuted for drug violations. If they are arrested, the police or other court personnel usually cannot communicate with them and may let them go. Similarly, courts and jails are seldom wheelchair accessible, which means that wheelchair users who are arrested on drug charges may be released rather than be prosecuted. Thus, the legal consequences of substance use that often deter nondisabled people or force them into treatment may not be present for people with disabilities, which serves to perpetuate their problems (McCrone 1982:202). More generally, misplaced sympathy or guilt is often manipulated by the

substance user to perpetuate use (Greer 1989).

A related problem is that of problem avoidance. The tendency that has long existed among many people to ignore the problem of AOD use in the field. This has contributed substantially to increasing the risk this population faces of developing abuse problems. By the time that a disabled person finally does receive help, the alcohol or other drug problems are often at an advanced stage. By also helping to keep the problem hidden, this tendency has contributed the inadequacy of prevention, intervention, and treatment services for this population, which has, in turn, contributed to the risk that this population will develop use-related problems.

Circumstance of Impairment. A significant influence on the risk for substance abuse may be the nature and time of onset of the disability. There is some evidence that people with congenital disabilities or those who became disabled before the onset of adolescence are less likely to use drugs or to develop drug-related problems. One possible reason for this, according to Francendese and Glass (1981:916), is that the younger a person is when disabled, the easier it is to incorporate a new body image into one's sense of identity. If a sense of "normality" has not been developed, it is less likely that the person will see himself or herself as "damaged" or "ruined." "Further, the child who is disabled early...is often isolated in a segregated school or homebound, lacking normal peer contact [and]....the opportunity for the usual phases of rebellion and experimentation."

In support of this, Moore and Siegal (1989*) found that college students whose injury resulted from trauma were more likely than congenitally impaired students to have high Problem AOD Use scores.

This would suggest that adolescent trauma victims should be viewed as at relatively high risk among the disabled, particularly if they have a history of problem use predating their injury. On the other hand, the evidence regarding the effects of traumatic injury on AOD use is limited and mixed. The results of the only comprehensive study to date of alcohol use before and after spinal cord injury suggest that use may decline after injury. Heinemann, Doll, and Schnoll (1989*) found that, over a period of two years (6 months before injury, 6 months after injury, and 18 months after injury), drinking declined from the pre-injury period to the post-injury period: 91% drank on three or more occasions during the 6 months before injury, whereas 67% reported so drinking at the 18-month follow-up assessment. Both the frequency and the quantity also declined. Median frequency declined from 3-6 times a week to 1-2 times; median quantity from 5 drinks per occasion to 4 drinks. Only 6% of reported that there drinking problems began after their injury.

Whereas 87% of 47 spinal cord injury patients studied by O'Donnell, Cooper et al. (1981/82*) had a history of heavy use of alcohol or drugs prior to injury, only 68% resumed use during rehabilitation.

Kirubakaran, Kumar et al. (1986*) found that other drug use (but not alcohol) increased after injury. Whereas the majority of paralyzed veterans began regular alcohol use before spinal injury, the majority (75%) of those who regularly used other drugs began use after injury. However, current levels of use of both alcohol and, especially, other drugs were down 15% and 66%, respectively, from prior levels. Most subjects who reported a decline in consumption said that it was a reaction to their injury.

This would suggest that the effect of the injury itself in the AOD problems of SCI patients is complex. Whether the declines in use are the result of the injury itself (especially if drug-related) or part of the process of rehabilitation warrants further investigation. However, Schuschl and Straw (1988:4) warn that, while there is some evidence that trauma leads to reduced use, the effects are unclear. It is erroneous to assume that a chemical dependent person who acquires a disability as a result of use will learn the lesson and abstain. More research is needed on how trauma-causing accidents, especially those in which AOD use was a contributing factor, may influence post-accident use.

Self-Esteem. Low self-esteem has been shown to be associated with both substance abuse (as a risk factor) and with physical or mental disabilities (as a consequence) (Moore and Polsgrove 1989). Sweeney and Foote (1982) listed low self-esteem as one of the most important factors contributing to substance abuse among veterans with SCI.

Peer Pressure. AOD use can be a way for youth with disabilities to feel and appear "normal" since they may perceive such behavior to be part of the social experience of nondisabled peers. This specially appears to apply to people who are deaf or developmentally disabled.

Sensation-Seeking and Fantasy. According to DeLoach and Greer (1981), the need for fantasy or sensation-seeking may be higher among people with disabilities, and consequently there is more propensity to use psychoactive drugs to enhance fantasy life. Moore and Siegal (1989*) found thrill-seeking to be one of the variables most highly correlated with AOD use among physically impaired college students.

Hearing Impairment

Isaacs, Buckley, and Martin (1979) suggested that peer pressure explained why the "heaviest" drinkers in their survey were attending schools for the deaf. They noted that the deaf community in general tends to be isolated due to communication deficiencies and low self-esteem, which leads to a denial of drinking problems when they do occur and results in misuse going unnoticed or untreated (see also Boros 1981).

Family pressure or enabling may be an even more important risk factor. Some youth with disabilities have reported being initiated into use by their hearing siblings, reflecting their sibling's ambivalent feelings toward the deaf family member (McCrone 1982:201).

Anecdotal information indicates that some deaf students may engage in drug dealing in order to gain a sense of confidence, power, and competence (Gilmore 1988:45-49; Greenwood 1984:51; McCrone 1989:11-12). This may result in more heavy involvement in the drug lifestyle. It could also be a factor in the high rate of legal problems found in this population by Locke and Johnson (1981).

Mobility Impairment

Moore and Siegal (1989*) concluded that factors related to alcohol and other drug use among college students with orthopedic impairment tended to be similar to those found among college students generally rather than being unique to their physical impairment. Their scores on a Problem Use scale were most highly correlated with thrill seeking, sexual activity, and perceived benefits of drinking scores.

Substance abuse may be related to the chronic pain and medical problems experienced by this population, though the evidence is primarily clinical, not epidemiologic (Moore and Polsgrove 1989). Kirubakaran, Kumar et al. (1986*) suggest this may explain why other drug use increased in their sample following injury. The role of traumatic injury, as discussed above, particularly needs to be investigated as a risk factor for AOD use among the mobility impaired.

The high levels of marijuana use among people with SCI may be related to self-medication. Malec, Harvey, and Cayner (1982*) noted that many SCI patients attributed their marijuana smoking to an expectation that it would diminish spasticity. Among 43 patients subsequently surveyed, 88% of the 24 marijuana users said that marijuana either eliminated or reduced spasticity. The authors concluded that the reported reduction in spasticity could not be interpreted as a rationalization for marijuana use since the perceived reduction in spasticity did not correlate with variables related to marijuana use, such as previous marijuana use, admiration of marijuana users, and age. But the reduction could have been related to expectations of the effects of marijuana or to placebo effects rather than to any measurable change in spasticity.

Developmental Disabilities

Although the educable mentally retarded experience many of the conditions and situations that have been found to be associated

with heavy AOD use in the general population (e.g., negative labeling, parental rejection or neglect, social isolation, underemployment or unemployment, low self-esteem), they experience relatively low levels of AOD use. Edgerton (1986*) attributed this to negative role models and socialization practices. Regarding the mentally retarded people he studied, he wrote, "Most of them said that they were taught not to drink or use drugs not only because these practices were wrong for anyone, but particularly because they were harmful for them as individuals. They also said, repeatedly and often with feeling, that they had seen for themselves the problems that alcohol and drugs caused for others and that these were problems they wished to avoid" (p. 608).

Among the mentally retarded students surveyed by Huang (1981*), peer pressure and the desire for social acceptance were more important influences on drinking than they were for the nonretarded students. Higher percentages of retarded than nonretarded students gave reasons for drinking related to peer acceptance ("reached the age to drink," "friends drink," "avoid being laughed at," and "to be with the crowd"). However, drawing upon the research of Edgerton (1986*) and Halpern, Close, and Nelson (1986), Delaney and Poling (1990) write: "It is possible that peer influence toward heavy drug use is less common among mentally retarded people (i.e., they are socialized differently), although this possibility has not been systematically examined....Exploration of the variables that control drug use by mentally retarded people is clearly needed."

The research of Westermeyer, Phaobtong, and Neider (1988) also points to the influence of the family and outside world. Struck by the "extraordinary" evidence that mentally retarded males and females were at equal risk, they speculated that this was because of the increasing tendency of mentally retarded females to date and marry. Thus they had more contact with the outside world. Parental and sibling use also "strongly differentiated" subjects from controls. Two-thirds of mentally retarded substance abusers had user fathers compared with only a quarter of mentally retarded controls. Overall, they found that substance abuse was predicted by other problem behavior and was not an isolated condition.

Edgerton (1986*) speculated whether the cost of drugs might play some role in limiting use within this generally low-income population, although the majority of persons in his sample had ready access to alcohol and other drugs. Here subgroup differences could be significant.

Learning Disabilities

Concerns about the risk of developing AOD problems among hyperactive youth have focused on two areas. First, many qualities attributed to hyperactive children have been identified as antecedents of AOD use, such as low self-esteem, impulsivity, noncompliance with authority, poor academic motivation and school performance, and aggression, susceptibility to peer pressure. As shown, it appears that hyperactivity in itself does not predispose to alcohol abuse.

The second area of concern is the effect on subsequent AOD use, as well as health in general, from the common practice of medicating hyperactive children with the stimulant Ritalin (methylphenidate hydrochloridate) has especially provoked concern. Compared to the amphetamines, methylphenidate has a different chemical structure and less toxic side effects and its action is less pronounced on blood pressure, heart rate, circulation time, and respiration. But it is still a powerful stimulant with potentially serious adverse effects. It resembles or duplicates the amphetamines in effect and is frequently called an amphetamine compound or relative. Its effects are similar enough to amphetamine that it has been a street substitute for it, most notably in Sweden in the early 1960s (Austin 1978). It has also been popular among methadone maintenance patients, who inject it intravenously, because the drug helps overcome the initial sedative effects of the methadone and produces a pleasurable "rush." Like the amphetamines, it can produce insomnia, nervousness, hypersensitivity, anorexia and weight loss, dizziness,

nausea, and palpitations. Because of increased cardiovascular response that may result in blood pressure and pulse changes, it is recommended that patient blood pressure be monitored.

It can also be highly addicting when used chronically in high doses. In 1971, A letter to the editor of the prestigious *New England Journal of Medicine* described how intravenous drug addicts who began using Ritalin (initially from doctor's prescriptions) considered it "the most highly addicting and dangerous drug that any of these men can think of." Even among therapeutic users, dependence on the drug may also occur as higher dosages may be required to get the desired effect over time. Complications may also occur during unsupervised drug withdrawal. Thus the manufacturer strongly recommends that the drug be administered only after careful diagnosis (Cooter 1988). (On adverse reactions and habituation in therapeutic dosages, see Lucas and Weiss 1971; Cole and Moore 1975; Kalant 1973.; on the intravenous abuse of Ritalin, see Haglund and Howerton 1982.)

The primary medical use of the drug today is for treatment of childhood hyperactivity. Paradoxically, when low doses it are given to hyperactive children there occurs a reduction in classroom fights, temper tantrums, anger outbursts and defiance. In a "paradoxical effect," it makes them more calm and attentive in classroom, and improves social behavior and motor skills on some tasks (Cooter 1988:462). It has also been prescribed as a means to improve academic performance, especially reading.

The effectiveness of Ritalin treatment has been much studied and debated. It is estimated that 60%-70% of hyperkinetic children show symptomatic improvement with it. Favorable behavioral responses in the classroom setting after four weeks of treatment with moderately high doses were reported by Abikoff and Gittelman (1985). Because of the drug's low cost and seeming effectiveness, such therapy is perceived as good by parents, teachers, and physicians.

However, there are no reliable means yet to predict who will respond favorably, especially because there are many nondrug factors which appear to affect outcome (Hartlage and Telzrow 1982). Furthermore, positive effects on academic performance are less clear. A substantial body of literature indicates that for academic problems, drug therapy pales in comparison with appropriate academic interventions (Gadow 1983). Most major studies suggest that no short- or long-term benefits are derived from it for reading disorders (Aman and Werry 1982; Ballinger, Varley, and Nolan 1984; Gittelman Klein, and Feingold 1983; Gittelman 1985). This is possibly because of differential dose effects. The higher doses given for behavior regulation may contribute to greater problems with reading-related tasks; on the other hand, the small doses which appear to enhance learning do not affect behavior (Sprague and Sleator 1977; Brown and Sleator 1979). As Cooter (1988:465) observes: "It seems reasonable to assume that many students receive the higher dosage as a behavior regulator, a practice that may cause the student to be quieter in class, but have greater problems with reading related tasks" (Cooter 1988:465).

Does regular consumption of prescribed Ritalin place a hyperactive child at greater risk for subsequent AOD problems through habituation or euphoric reaction to the drug? This may be especially a problem for hyperactives who are already at risk due to concomitant aggression. Methodological weaknesses in the research call for some caution in interpreting findings, but on the whole, Ritalin treatment has not been found to increase the risk of using and abusing other drugs (Beck et al. 1975; Blouin, Bornstein, and Trites 1978; Clampit and Pirkle 1983; Henker, Whalen et al. 1981; Weiss, Hechtman et al. 1979).

For example, Blouin, Bornstein, and Trites (1978) observed no differences in drinking frequency or quantity over a five-year period (beginning at age 9) between those hyperactive children medicated with Ritalin (n=27) and those "similar" in age, IQ, and academic achievement who were not given it (n=15). In fact, they found that those youth who were good responders to Ritalin medication were later less involved with alcohol, as did Loney, Kramer, and Milich (1981) for marijuana use.

Weiss, Hechtman et al. (1979) observed no differences between Canadian samples given medication for varying lengths of time. Subjects were 68 males and 7 females who had been given chlorpromazine (Thorazine), dextroamphetamine, or a combination at a hospital clinic for hyperactivity 10 to 13 years earlier. Controls consisted of schoolmates screened to exclude learning and behavior problems. The mean age at followup was 19.5 (range 17-24). A significantly larger percentage of hyperactive subjects than schoolmates claimed to have used at least one nonmedical drug within the past 5 years (74% versus 55%), but there were no discriminating differences in use in the past year. Among those subjects and controls who had used drugs, there were no significant differences in use, expect for higher level of hallucinogen use among controls. A followup two-years later indicated no significant differences in current use. There were significant differences in regard to past use indicating hyperactives were more likely to engage in immoderate use of alcohol and become more extensively involved with marijuana, but in other areas the nonhyperactives showed greater use.

In a retrospective study of use among 17 adolescents (mean age 13) who recalled being given Ritalin and a comparison group of 466 males of the same age, Henker, Whalen et al. (1981) found no differences with regard to their frequency of use of cigarettes, coffee, alcohol, or other illicit substances (stimulants, downers, cocaine, hallucinogens, and heroin).

Although there is little evidence that treatment of hyperactives with psychoactive medication leads to AOD abuse, the reasons for this warrant further investigation. Kramer and Loney (1982:250) speculated that this could be because: (1) neither hyperactivity nor medication for it places an individual at risk to use above normal rates; or (2) medication and hyperactivity might exert equal and opposing influences. To determine this, more research is needed on how differences in medication affect differences in use.

Based on his own research and a review of the literature, Loney (1988:23) suggests that "if early treatment with stimulants can decrease the irritability and impulsivity of hyperactive children and raise their frustration tolerance and self-esteem, those effects might even decrease the probability of ultimate drug abuse" (on this, see also Kramer and Loney 1982:241). This may explain the findings (e.g., Blouin, Bornstein, and Trites 1978; Loney, Kramer, and Milich 1981) that those who responded best to Ritalin reported lower levels of use.

However, the effects of the "therapeutic" use of Ritalin on "problem-behavior" children have not been specifically studied and has provoked considerable concern, as discussed in the section on prevention.

In general, it would appear that the uncertainty as to whether hyperactive children have an inherent predisposition of later AOD abuse may be in part due to the complexity of risk as well as protective factors which hyperactive children experience. The literature on hyperactivity and alcoholism demonstrates the importance of differentiating hyperactivity from aggression and other antisocial behavior. Furthermore, against the risk factors that they face may be set certain "protective" factors. The fact that hyperactive children tend to be isolated and to have few friends as they grow older could mean that they may be at low risk from availability and peer factors. That is, whatever their propensity for substance use, they do not have the same opportunity nor the social pressure to use drugs as the general population (Kramer and Loney 1982:226).

Conclusion

People with disabilities experience the same psychological and social pressures to use and abuse alcohol and other drugs as people who are nondisabled. But many also experience additional psychological, emotional, and social problems associated with their disability that increase the risk for substance abuse. Often, there may also be protective factors that meliorate any additional risks they experience, which may explain why, despite the added risk factors many cases face, some report no higher use than the general population.

As Schaschl and Straw (1988) emphasize, it is clear that the etiology of AOD abuse among people with disabilities is highly complex. In many cases, abuse pre-dates the disability (and may even have contributed to it); in others, abuse does not materialize until later in life when the stressors associated with functioning in "normal" society increased. In the words of Moore and Polsgrove (1989:397): "Research...has clearly demonstrated that there are special considerations and variables which modify risk for some disabled populations. These factors may add to the risks from within the general population, or they may generate unique etiologies which existing chemical dependency models only partially explain."

To develop effective prevention, intervention, and treatment efforts, we must have a better understanding of that factors, both common and unique, play the most important roles. For common factors, how do their influences among people with disabilities differ from their influences among the nondisabled population? How do common and indigenous variables combine and interact to increase risk? What factors might be protective and how do they interact with risk factors? To accomplish these goals, we need to pay more attention to differentiating between subgroups among people with disabilities as well as to the age of onset of both the disability and AOD use and abuse.

Taken as a whole, the available evidence that across disability types, those people who are most at risk are: (1) those disabled after the onset of adolescence, especially through a traumatic injury; (2) those who have made the least positive adaptation to their disability; (3) those who demonstrate the least self-esteem and most problem behavior; (4) those who have a family history of abuse (parental or sibling); and (5) those exposed to the most other risk factors found to influence people in the normal population, especially exposure to peer influences and ready availability.

Finally, consistent with risk factor theory (see *Prevention Research Update* #2), the evidence would suggest that those people with disabilities who are most at risk are those exposed to the greatest numbers of total risk factors, with each risk factor reinforcing the others. Moore and Polsgrove (1989:399) hypothesize that it is the reinforcing nature of the many risk factors that young people with disabilities face that leads to abuse:

> "The path leading to alcohol and other drug misuse among disabled persons may be reciprocally reinforcing and spiral in nature. Developmental or educational delays exaggerate struggles with self-esteem, which, in turn, attenuate related mental health issues. This further compromises personal well-being and social acceptance, as well as promoting any tendencies toward physical problems or self-neglect. This situation encourages substance misuse. In turn, self-esteem is further depressed, resulting in greater social isolation and self-medication. This process may culminate in problematic use, or chemical dependency."

PREVENTION AND INTERVENTION ISSUES

The above evidence, despite its limitations, indicates that it is essential that persons with disabilities receive AOD prevention and intervention services as part of their regular educational or rehabilitation programs. To Gourguechon (1986:1), the "high-risk context" in which most disabled youth live "makes prevention strategies essential to daily survival." Similarly, Johnson warns, "Substance abuse has ushered in new problems, new needs, and most of all, a requirement for new approaches in special education." So far, we have failed to meet this challenge and, in this failure, we have helped to exacerbate the use-related problems within this population. But, in large part due to the efforts of advocacy groups across the nation, progress is being made and a better understanding is emerging of the need to expand prevention and intervention for this population, and how to go about doing so.

The Legal Context. Providing these services is part of the larger political and le-

gal process of ensuring that this population has equal access to programs, services, and facilities. Federal laws require that disabled persons have equal access to government-funded services. Section 504 of the Rehabilitation Act of 1973 (PL 93-122)--regarded as the "bill of rights" for disabled Americans--prohibits discrimination by reason of disability: "No otherwise qualified handicapped individual in the United States...shall, solely by reason of his handicap, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance or under any program or activity conducted by any Executive Agency or by the United States Postal Service." Funding sources and leaders within the AOD field need to demonstrate the importance of compliance with Section 504 and to educate their grantees and colleagues about the implications of federal legislation to ensure equal access in employment, public accommodations, transportation, and telephone services.

Also, the recently passed Americans with Disabilities Act of 1990 provides that people with disabilities have equal access to employment, public accommodations, and transportation. It is an important milestone in civil rights for disabled citizens and will undoubtedly affect alcohol and drug abuse services.

The Social Response. Over the past decade, government agencies have attempted to address this problem. The 1979 amendments to the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment, and Rehabilitation Act of 1970 designated alcoholics with physical disabilities as a priority group for grant and contract programs. In response to this legislative directive, the National Institute on Alcohol Abuse and Alcoholism launched a special program initiative to encourage and fund the development of prevention and treatment services for this group (then called the multidisabled) (Hindman and Widem 1980/81:6-7). Furthermore, the Office for Substance Abuse Prevention (OSAP), created by the Drug Free Schools and Communities Act of 1986, has designated youth with disabilities as one of the groups at high risk for developing problems with alcohol and other drugs.

Nevertheless, people with disabilities remain not only an under-researched but an underserved population. Few schools and rehabilitation programs have devoted attention to screening for those at risk. As of 1983, there were only ten drug treatment centers for the deaf in the USA and little has changed since then (Lane 1989). Similarly, programs and strategies aimed at preventing AOD use among youth remain limited at best. Virtually no published literature is available focusing on prevention issues or describing, much less evaluating, prevention programs. Despite OSAP's designation of disabled youth as a high-risk group, only 3 of 130 demonstration projects awarded by OSAP in 1988 focused on youth with disabilities, and it is doubtful that most of the prevention programs being developed with "Drug-Free Schools" funds are suitable for children with mental retardation, sensory impairments, or other disabilities (de Miranda 1989).

In California, evidence of the limited services available to disabled AOD abusers emerges from a 1988 survey of substance abuse treatment agencies and disability service agencies in the San Francisco Bay area conducted by the Coalition on Disability and Chemical Dependency (recently renamed the Institute on Alcohol, Drugs, and Disability). Less than 1% of the area's estimated 63,000 disabled persons with alcohol or other drug problems were being served by the responding agencies during the most recent reporting year; only 13% of the substance abuse programs had sign language interpreters; only 17% of the disability service agencies included assessment for alcohol and other drug use during intake interviews; and only 15% of the disability service agencies provided their clients with information on substance abuse (de Miranda and Cherry 1989:156). The California Attorney General's Commission on Disability (1989) concluded that virtually no improvement in AOD services available to people with disabilities had occurred over the past decade, despite persistent lobbying by advocacy groups (California 1998).

Service Barriers. Hampering efforts to develop AOD programs for youth with disabilities are the many challenges already faced by special education and other instructors of these students. As Gourguechon (1986:1) observes: "Schools serving disabled students often feel over-burdened by the challenge in educating children with disabilities." The lack of specialized programs also reflects the process of "mainstreaming," in which it is assumed that handicapped youth can rely on services geared to the needs of the general population.

Another barrier to service delivery is the lack of communication in the field that has also hampered research efforts. The alcohol, drug, and disability field is still in an early developmental stage and there is a lack of "ownership" of the issue. Wherever two or more fields of social services overlap, there is danger that knowledge and service gaps will result. A social problem that is not "owned" by a single organized network of funding sources, provider agencies, and professional staff becomes, like an orphan child, everyone's problem and no one's responsibility. For many years, such as been the case with AOD problems among people with disabilities. Many noted the immense need, but assertive leadership and policy initiatives were in short supply.

Consequently, the needed prevention and intervention efforts have not materialized as essential components of school and rehabilitation programs.

Current Initiatives. Despite these barriers, progress is being made, in large part do to the efforts of advocacy groups. (Appendices A and B provide a list of existing prevention materials, programs, and advocacy organizations.) During the past 5-10 years, several significant grassroots advocacy efforts have emerged, in different parts of the country, to challenge the inadequacy of research, service, prevention, and education efforts devoted to this population. In fact, much of the information in this Update has been influenced or indirectly supported by these advocacy efforts. These initiatives have sought to change the operational practices of local, regional, state, and federal systems that should be providing funds and services to persons with disabling conditions who also experience AOD problems. Using a variety of moral, legislative, and regulatory persuasion, these coalitions of professionals, consumers, and activists have succeeded in establishing people with disabilities as the last remaining major special population needing attention from the alcohol and other drug movement.

For example, the National Center for Youth with Disabilities has identified a number of education and prevention curricula specifically designed for students with varying types of disabilities (National Center for Youth with Disabilities 1990; see Appendix A). In Illinois, the Prevention Resource Center has undertaken a Special Project on Prevention and Disabled Students that combines research and outreach in looking at the special needs of this population (Gourguechon 1986). At the 1990 National Prevention Network Conference on substance use and disabilities, an American Association on Alcohol, Drugs, and Disability was formed and a number of workshops were devoted to prevention and education programs for specific types of disability groups (National Prevention Network 1990; the proceedings of the conference will soon be published).

A pioneering effort was begun at Kent State University by Dr. Alexander Boros, who founded and still directs the Addiction Intervention with the Disabled Project. This project has developed a series of innovative prevention and education aids in picture-idea format that are designed for use with individuals with limited cognitive or reading skills. In addition, the project publishes the *AID Bulletin* (see Appendix B), a subscription newsletter that disseminates information about programs, research, and policy issues.

The Physical Disability Chemical Dependency Treatment Program at Abbott Northwestern Hospital in Minneapolis has accomplished much to raise awareness and train health care practitioners in the special treatment and recovery needs of persons with disabilities. Sharon Schaschl and Dennis Straw have delivered numerous conference presentations, workshops, and specialized trainings throughout the United

States for the past ten years. While the focus of their work is on providing information about treatment considerations, advocacy for additional services and prevention and education issues are regularly included.

During the past decade, two major advocacy initiatives have evolved in California. Both efforts arose because grassroots providers from both the disability and the alcohol/drug fields identified the problem and cooperated to improve accessibility to services. In the Los Angeles area, the Congress on Chemical Dependency and Disability has been active in calling attention to the lack of services at state and national levels. This group has been successful in directing the attention of high-level state and federal policy makers to service deficiencies. The Congress has also assisted in efforts to develop a national association of persons interested in alcohol and drug problems among the disabled.

In the San Francisco Bay area, the Institute on Alcohol, Drugs, and Disability (formerly the Coalition on Disability and Chemical Dependency) has been conducting a wide variety of research, policy, education, and advocacy activities, including a comprehensive analysis of barriers to services throughout California, a project to provide training and consultation, and publication of a free newsletter entitled *The Seed*. The institute developed an AOD information booklet for deaf youth written at the primary grade reading level that has proven valuable for both youth and adults who are mildly retarded or reading limited for other reasons (see Appendix A).

Further improvement will require the development of new materials, new strategies, better training, and more research. This is an area which is particularly plagued by a communication gap between research and practice, with research failing to address the information needs of the practitioner. Only when AOD use/abuse prevalence and etiology among people with disabilities are more clearly understood will it be possible to design effective prevention, intervention, and treatment programs.

General Issues and Needs

Suggestions for programmatic improvements and issues that need to be addressed are emerging. Most deal with treatment rather than prevention, but many of the suggestions, guidelines, and principles from the intervention and treatment literature can help develop prevention programs. One the one hand, there current prevention programs have many virtues to recommend them for use with youth with disabilities. On the other hand, it is evident that prevention and intervention programs need to be tailored to specific population needs. Among the specialized needs that have been identified are providing:

- information about specific drugs;
- independent living skills;
- alternative activities;
- parent education and involvement;
- service provider education;
- counter-enabling education;
- better physical access to facilities; and
- better identification and intervention.

Generic vs. Specialized Programs. As noted, the mainstreaming process in schools has helped to hamper the development of specialized programs for the disabled. But there is much to commend in the new generation of comprehensive prevention programs, particularly their emphasis on life-skills training, peer pressure resistance, and self-esteem building.

Substance abuse prevention among all youth, but especially among youth with disabilities, should not be just a matter of problem avoidance but one element in a larger effort to promote the overall health (physical, psychological, social, personal) of people with disabilities (Gourguechon 1986; Perry and Jessor 1985). The skills offered in many substance prevention programs, such as self-esteem and competency enhancement, communication skills, refusal skills, assertiveness, and decision making may not only reduce reliance on alcohol or other drugs, but also help disabled students learn to adjust to their disability and to prepare to live in the community. In this regard, ex-

pansion of prevention services among the people with disabilities, particularly youth, may prove to have benefits other than just helping them avoid drugs.

However, the evidence would also indicate that the existing life-skills prevention programs need to be modified and/or expanded to address the specific needs of youth with disabilities. Although developers of AOD prevention and treatment programs for disabled students can draw on the experience and resources of programs for nondisabled students already in existence, these programs as they exist are generally still not appropriate for disabled students. There is at times an implicit assumption in some of the literature that the types of services for all disability groups will be--or should be--the same. As noted in previous *Updates*, one of the weaknesses of past prevention efforts has been their failure to take into consideration the needs of population groups other than those of mainstream students. In order to be effective, programs for these students must be designed to take into consideration their special needs and problems. To do so requires better assessment of the prevention needs of disabled youth in general and of specific groups. Different settings (residential, mainstreamed, or special education class) may also require special considerations (see Gourguechon 1986:2).

AOD Education. Given the high use of medications within this population, prevention programs should carefully distinguish between the use of medically prescribed drugs and other drugs, and should provide information on the safe and responsible use of prescribed drugs, including drug interactions. Persons with disabilities also need specific information on the effects of all drugs as they relate to their disability. In addition, it would appear that different groups would require an emphasis on different drugs and drug problems; for example, marijuana for students with SCI and alcohol for those who are hyperactive.

Independent Living Skills. Preventing substance abuse must necessarily involve providing support and help in the emotional and practical issues involved in disability. Teaching independent living skills can help prevent substance abuse by breaking through the isolation that often accompanies disability, and by helping people cope in positive ways with the emotions related to disability. Since the achievement of independent living increases the anxiety and stress associated with new responsibilities and expectations, as part of this process support needs to be provided during the early period of transition to independent living (Hepner, Kirshbaum, and Landes 1980/81:115).

Alternative Activities. A component of any comprehensive prevention program is providing and reinforcing alternative behaviors that are positive, healthy substitutes for health-risk behaviors (Benard 1986:5). Alternative programs that use recreational and other activities to enhance self-esteem and self-control have been found to be particularly effective in dealing with high-risk youth (Tobler 1986; Bickel 1990). Such programs would seem to offer particular benefits to youth with disabilities, who often suffer from low self-esteem and self-control, and have an excess of leisure time. Given the limitations in the capabilities of this population to participate in such activities, developing such programs poses a special challenge.

Parent Education and Involvement. Parent involvement is an important component for a successful comprehensive prevention program (Benard 1986; Kumpfer 1990). This would appear to be particularly the case in dealing with youth with disabilities, as parental rejection and enabling have been identified as prominent risk factors. As part of this process, parents should be informed of school policy regarding AOD use (Johnson 1988).

For students in residential settings, parent involvement may be difficult because parents often live at great distance from their children. They may also have feelings of guilt, anger, loss, and grief regarding their disabled children, which complicate their participation in prevention activities. As a result, support groups for students with disabilities may be more important with this population as an effective way for helping them deal with the pressures to use drugs

and with the challenges of disabling conditions (Gourguechon 1986).

Service Provider Education. Increasing substance abuse services to this population involves a two-pronged educational effort for service providers. Training designs need to be developed for enhancing the skills of AOD prevention professions in working with people serving disabled and of disability professionals in recognizing signs of abuse or of risk of abuse. Most graduate programs and textbooks in special education and rehabilitation counseling ignore AOD use, and most prevention specialists have little knowledge about the unique needs of people with disabilities. Substance abuse professionals need to become aware of the problems of those clients who have disabilities. They need to learn about disabilities and to make appropriate changes in programs, facilities, and materials to help disabled clients to have full access to the services offered. Administrators need to assess their programs with respect to whether equal access is being provided in building facilities, transportation, preferred mode and level of communication, etc.

In turn, special education instructors and disability professionals must become more aware of the potential AOD problems of their clients, the extent and nature of the problem, the rights and protections of disabled citizens under federal law, and the programs and materials that are available (Johnson 1988). As Sengstock, Vergason, and Sullivan (1975:139) observed, "This subject is one which requires sensitivity, discretion and extremely careful preparation and implementation. Not many teachers have received necessary training in drug education or in evaluating drug oriented material."

In general, we need to break down the barriers between the fields of special education, disability rehabilitation, and AOD abuse. Special education instructors need to be able to communicate students' special learning needs to substance abuse practitioners who are not trained in special education (Johnson 1988).

Part of this process among both groups is to dispel from them the myths and fears that they hold about disabilities and substance use. Having a disability, while arising from a physical condition, is also a social role created by social definitions, attitudes, and practices. According to Robert Murphy (1987:113), "The greatest impediments to a person's taking full part in his society are not his physical flaws, but rather the tissue of myths, fears and misunderstandings that society attaches to them." The restrictions and limitations that result from societal attitudes towards people with disabilities are usually more "disabling" than the person's physical or mental impairment.

Allen, Peterson, and Keating (1982) and Goodyear (1983) have documented a marked negative attitude among rehabilitation counselors toward clients with alcohol-related problems. Attitudes held by disability and special education counselors regarding substance abuse can impede their ability to provide information about drugs or to confront clients who have substance problems. Similarly, substance abuse professionals need to recognize attitudes they may hold regarding disability that interfere with providing effective prevention services to this population.

While prevention specialists who chose to work with people with disabilities should become as knowledgeable as possible about disability issues, they need not become experts or authorities. They can and should establish connections with disability professionals in the community in order to find answers to specific questions and to learn what is appropriate for people with disabilities (Kearns 1989:165-166; Nelipovich and Buss 1989*:129-131; de Miranda and Tusler 1989:3).

Counter-Enabling Education. As discussed above, family members and counselors may become enablers by having lower expectations for disabled youth with alcohol or other drug problems. Such attitudes need to be recognized and changed if substance abuse among this population is to be dealt with directly and honestly. Thus Greer (1986:36) recommends that "a 'counter-enabling' effort should be the thrust of awareness programs for all persons directly involved in the rehabilitation of the physically

disabled substance abuser." The same can be said for all those involved in prevention.

Physical Access. Lowenthal and Anderson (1980/81) and Anderson (1980/81) have described the general difficulties and barriers encountered in attempting to establish an integrated substance abuse treatment program for disabled people. These are not only attitudinal but architectural, the need to provide physical access to facilities for the mobility impaired (Greer 1986).

Identification and Intervention. Drug abuse screening should be an integral part of disability program intake and special education assessment. To this end, we need better tools and methods for diagnosing those youth within the disabled population who are most at risk (i.e., determining the severity of use problems or risk of abuse).

The problem of AOD abuse among the disabled posses particular problems for those responsible for special education assessment (i.e., determining whether or not a student is eligible for services). As Johnson (1998) emphasizes: "Since alcohol and drugs have such a profound and immediate effect on physical and psychological functioning, one cannot properly determine what the primary problem is as long as the problem of substance use or abuse remains undifferentiated." He recommends that when current or past involvement with AOD use is indicated, such use "ought to be considered as the primary problem to be addressed before turning attention to other issues such as learning and behavior problems." Otherwise, an accurate assessment of, and response to, the student's developmental, psychosocial, and educational status can't be made.

However, it is important to keep in mind that many of the factors that contribute to drug use among this population are also factors associated with the disabled condition. Moore and Polsgrove (1989:399) conclude that the evidence that low self-esteem, social isolation, and disenfranchisement and AOD misuse are covariates suggests an integrated approach dealing with all these factors simultaneously must be undertaken.

As part of this process, special education instructors need to become familiar with Student Assistance Programs (SAPs) and learn how to refer students to them (Johnson 1988).

Group-Specific Needs

Prevention issues and recommendations for specific groups include the following:

Developmental Disabilities

Programs for students with developmental disabilities will need to present concepts in concrete and simplified terms and will need to reduce the pace of the presentation of materials (Johnson 1988:31). As difficulty in finding peer-group acceptance has been identified as an important risk factor among the educable mentally retarded, peer-pressure resistance should be a component in their prevention programs.

Learning Disabilities

The possible links between childhood hyperactivity and later alcoholism suggest that alcohol education be specially stressed in programs for youth with ADHD. The primary concern within the prevention community, however, is over the practice of Ritalin therapy. If appropriate Ritalin therapy does not increase the risk of subsequent AOD abuse among hyperactives, there is a serious problem in its inappropriate use on youth with behavior problems, particularly as high doses are used to modify behavior. The practice places them at risk of the drugs' many adverse effects, as well as scholastic problems as evidence indicates high doses have an adverse effect on academic achievement.

In light of Ritalin's dangers, and its limits in the treatment of academic performance, research suggests that its therapeutic use be limited to the small percentage of kids whose activity levels are excessive across all settings and situations. This is the group that appears to respond most favorably to this drug therapy (Hartlage and Telzrow 1982:61). But, hyperactivity is a description applied to half of children referred to clinics for behavior problems. Cooter (1988:463-464) observes that "many children on Ritalin receive the medication at the bidding of

teachers and parents concerned about school performance and/or behavior." Classroom teachers may even be giving the drug inappropriately, often it appears out of lack of information and knowledge about it (Bosco 1975; Bosco and Robin 1976). Aman and Werry (1982) found that 31% of educationally handicapped students in a California sample were assigned to drug regimens. Reportedly, many parents and teachers have been advocating Ritalin treatment out of intolerance of even normal activity levels and children have been diagnosed as hyperactive on the basis of isolated or situational incidents of overactive behaviors (Hartlage and Telzrow 1982).

The most recent controversy occurred in Atlanta, Georgia, when authorities noticed in the mid-1980s that prescription sales of Ritalin in the state were three times greater than in New York, and that 45% of these sales occurred in a few wealthy Atlanta suburbs. Georgia's Board of Medical Examiners and the federal Drug Enforcement Administration undertook an investigation into whether well-off Atlantans had been giving heavy doses of the drug to their children for no other reason than that they had behavior problems. The practice was linked to pressure to medicate kids with marginal behavior problems in order to preserve orderly classrooms and promote academic performance, and much of the blame was laid on teachers. This practice has important policy and prevention implications, raising several questions about the contradictions in, and oversimplifications of, our attitudes towards drugs. This is especially true of the latest scandal over it in Atlanta, as this is the same city where a group of parents galvanized by concerns over adolescent marijuana use helped give birth to the antidrug parents movement in 1976. This practice reveals a state of mind in which drugs used for "therapeutic" purposes are viewed as "good," even when the drug in question is also a street drug with dangerous effects. Undoubtedly, the same parents who were giving Ritalin to their unruly children would have been outraged if they found out that their children were buying and using it on their own. The Drug-Free America Act requires a mandatory life sentence for a 21-year-old who sells a gram of cocaine to a 20-year-old. How different is this person from the parent who repeatedly gives a powerful stimulant like Ritalin to a child for whom it is inappropriate? How can adults except youth to believe in the dangers of "illicit" drugs when adults themselves sanction the use of, and even provide them with, other drugs, which are equally if not more harmful to self and society?

Moreover, the case reflects a tendency to search for simple solutions and quick fixes for difficult, complex problems involving drugs. On the one hand, in the current antidrug crusade, as frequently has occurred throughout history, drugs are being attacked as a cause of all kinds of social problems, ignoring how current socioeconomic conditions are contributing to the spread of drug abuse. We are in danger of forgetting that often drug abuse is not the explanation but the symptom of a problem.

On the other hand, it appears that some parents are giving Ritalin to their children because it is a cheap, easy solution to the problem of dealing with their children's behavioral problems. Ironically, drug treatment may also be emerging as a means for juvenile control. Ira Schwartz, director of the Center for the Study of Youth Policy, has argued that some adolescent drug treatment centers are being used as a private, hidden juvenile corrections system for disruptive or acting out youth who are no longer processed by public juvenile justice control authorities. Some troublesome youths are being sent to chemical dependency treatment rather than reform schools or jails, even when they may have had only limited drug experience. Neither action can take the place of concerned, involved parenting.

It seems that as a society we want things both ways: to blame some drugs for our children's behavior problems and send them off to treatment centers, and to give them other drugs to solve their behavior problems. In both cases we are avoiding dealing with the fundamental problems that face us. (For further discussions on the policy of using Ritalin on children, see Bruck 1976; Grinspoon and Singler 1973; Kramer and Pinco 1972, Smith and Kronick 1979).

Hearing Impairment

McCrone (1982:201) complains that deaf people have in the past received little or no AOD information. There are few residential schools and few public school programs that involve deaf people in prevention. The similarities in attitudes toward alcohol among the deaf and nondeaf suggest to Lane (1989) that current prevention programs can be adopted for them and may have residual benefits in lifeskills training and coping. However, there is much that needs to be done as part of this adaptation process. In this regard, the work of Alex Boros has been especially important.

Hearing impaired students will probably need interpreters and suitable print materials. In developing prevention and education programs for people who are deaf or severely hearing impaired, it is important to recognize that they do not merely have a sensory disability; they have a distinct culture by virtue of their language--American Sign Language (though not all deaf people use this language). Also, while the range and distribution of intellectual ability in deaf people are the same as in the hearing population, the grade-level achievement of most deaf people is about fifth grade. Gourguechon (1986:2) stresses that this communication difficulty and delayed language development make concepts dealing with emotions and attitudes particularly difficult to convey to this population. Thus, the terminology of substance abuse may be difficult for a deaf person to understand unless an effort is made to provide education sessions with an ASL interpreter who can teach the deaf person the basic concepts needed to participate in prevention programs.

Consideration should also be given to developing prevention programs that are operated by deaf schools and organizations, with the instruction and counseling provided by persons who are deaf rather than by hearing instructions through interpreters (Wentzer and Dhir 1986:11-13; McCrone 1982:199; Rothfeld 1982:82; Boros 1980/81; see Appendix B for the address of the registry of interpreters for the deaf).

In terms of content, the risk factors literature would indicate that prevention programs for the deaf should have strong peer-pressure resistance and self-esteem building components.

Visual Impairment

Of course, visually impaired students need braille translations or tapes. Unfortunately, too little research has been conducted on this population to provide any insights on their specific prevention and intervention needs beyond this basic level.

Mobility Impairment

Programs for SCI, many of whom appear to use marijuana to reduce spasticity, should focus on the dangers of this particular drug. For those whose are disabled through trauma, screening for AOD abuse is especially important, as it may have contributed to the injury.

Because of the evidence that it is really aggression that is the root of the observed associations between hyperactivity and alcoholism, Kramer and Loney (1982:254) stress that the need to determine the individual contributions of aggression and hyperactivity to the prediction of substance involvement. They further recommend: "If a child who is both hyperactive and aggressive comes to a clinic (and it would appear from the literature that many such children do), it would make sense to monitor and concentrate treatment on whichever behavior is more highly associated with alternative outcomes, including drug use."

CONCLUSION

The results of the various studies reviewed here indicate that the overall prevalence of AOD use is at least as high among people with disabilities as in the general population, but the the circumstances involving their disabilities places many of them at higher risk of use-related problems. Considering that people with disabilities are one of the largest high-risk groups for sub-

stance abuse, it is regrettable that so little research has been carried out on the extent of the problem, the drug use patterns, and the particular problems associated with use among this population, and effective prevention and intervention approaches.

The reasons for concern over substance abuse among people with disabilities arise from several factors. The frequent prescription of psychoactive drugs (even if not strictly necessary) may lead to abuse or to medical complications as a result of drug interactions. The enabling behavior of physicians, counselors, and family may encourage or aggravate prescription misuse and AOD abuse in general. Whatever the level of use may be among people with disabilities compared with that of the general population, the AOD problems of the former are often of greater severity and longer duration because of the lack of adequate intervention and treatment services, as well as the tendency to problem denial and treatment avoidance out of fear of being labeled with an the additional stigma. Furthermore, AOD use has been found to interfere with recovery and rehabilitation.

We need much more research to help understand not only the differences in regard to AOD use between people with disabilities and people without them but also the subgroups differences among people with different types of disabilities. Much more research is needed on the differences between people with disabilities due to congenital factors and people disabled through accidents. Among trauma victims, misuse of alcohol and other drugs has been found to contribute to accidents that result in disabling injuries and often continues afterwards. What are needed are longitudinal surveys that examine use patterns pre- and post-injury to better determine the influence of both the trauma and the rehabilitation process on use patterns.

Determining the nature and extent of substance within this population is not only important for defining the scope of the problem; it also has significant implications for developing public policy in this area and for providing services to disabled persons. According to Meyers, Branch, and Lederman (1988*:627), "If those with major disabling conditions are at special risk of alcohol, tobacco, or cannabis abuse, there should be an extra effort to develop and implement programs which meet their special needs. In a climate of limited resources and cost containment, [however,] this may mean diverting resources either from other programs for people with disabling conditions (e.g., employment, education, or personal care services) or from programs which address problems of substance abuse in the population at large." An accurate assessment of substance abuse and its problems within the disabled population is important to ensure both that adequate services are provided and that scarce resources are wisely allocated.

The evidence presented here indicates that we are not allocating enough resources to understanding and addressing the prevention and intervention needs of this population. People with disabilities are sometimes referred to as a "special population"; it would be more accurate to say that they are an underserved or unserved population, certainly with respect to substance abuse. The challenge facing professionals in the substance abuse and disability fields, as well as state and federal officials concerned with these areas, is to work toward better understanding of the nature and extent of substance abuse within this population and toward overcoming the barriers to adequate, accessible, and quality services for the prevention and treatment of substance abuse.

ABSTRACTS

BUSS, AL, AND CRAMER, CHRISTINE. 1989. *Incidence of Alcohol Use by People with Disabilities: A Wisconsin Survey of Persons with a Disability*. Madison, WI: Office of Persons with Disabilities, Department of Health and Social Services. 64 pp. 11 refs.

The Offices for Persons with Disabilities and for Alcohol and Other Drug Abuse in Wisconsin conducted a survey of the extent of alcohol use among people with disabilities in the state. This was the first such large-scale study of this population. The sample was selected from mailing lists of the Division of Vocational Rehabilitation and the Centers for Independent Living. A total of 3,216 usable surveys were returned. A wide range of disabilities were represented in the sample, the most common being orthopedic or unknown (21%), spinal cord injuries (18%), hearing impairment (12%), arthritis or rheumatism (10%), and visual impairment (8%). Nearly all of the respondents (93%) were white; males were somewhat more prevalent than females (54% vs. 44%; 2% unknown). Most (60%) were between age 18 and 40. Disability groups with less than 30 respondents were not used in the analysis; the results discussed below are based on 3,088 respondents.

The questionnaire covered a wide range of topics: demographic background; disability status; living arrangements, employment, volunteer, and school activity; need for personal care attendant; transportation options; leisure activities; activities found useful for relieving nervousness or depression; prescription drug use; alcohol use; illicit drug use; and knowledge of where to obtain help for alcohol or drug problems. Only the results for alcohol use are reported here. The drinking patterns of the respondents were categorized into abstaining, infrequent, light, moderate, and heavy on the basis of the number of drinks per occasion and the frequency of drinking occasions.

Findings. For all respondents, 27% were abstainers, 18% were infrequent drinkers, 19% were light drinkers, 20% were moderate drinkers, and 16% were heavy drinkers. The moderate and heavy users are potentially at risk for alcohol abuse. Combining the moderate and heavy categories, the highest levels of alcohol were found among respondents with spinal cord injuries (49%), followed by those with amputations (44%), those with orthopedic injuries (42%), those with visual impairments (40%), and those with hearing impairments (33%).

The levels of alcohol use among this sample were considerably higher than those found in a nationwide general population survey (Cahalan, Cisin, and Crossley 1969). Heavy or moderate drinkers comprised 25% of the national sample, but 36% of the disabled sample. Conversely, a larger percentage of the national sample than the disabled sample were infrequent or light drinkers (43% vs. 37%). When the disability groups were considered separately, seven of them (arthritis/rheumatism, visual impairment, hearing impairment, spinal cord injury, orthopedic injury, brain trauma, and amputation) had drinking levels that exceeded those in the general population by 32% to 100%.

Conclusions. The results of this statewide survey in Wisconsin indicate that drinking rates among the disabled are higher than in the general population, with the implication that a substantial number are actual or potential abusers of alcohol. Alcohol use is particularly high among people with spinal cord injuries, orthopedic disabilities, visual impairment, amputations, and hearing impairment.

DEAN, JAMES C.; FOX, ANGELA M.; AND JENSEN, WESLEY. 1985. Drug and alcohol use by disabled and nondisabled persons: A comparative study. *International Journal of the Addictions* 20(4):629-641. 25 refs.

Data on alcohol and drug use was gathered in 1982 from 66 disabled students and 115 nondisabled students at a midwestern state university. Most of the students were in their twenties; there were somewhat more females than males, but there was no significant gender difference between the two groups. Among the disabled students, the three leading disabilities were orthopedic (spinal cord injury, amputation, etc.) (30%), learning disability (17%), and visual impairment (12%). Age of onset of the disability was as follows: birth, 27%; ages 1-17, 23%; and over age 17, 50%.

Findings. ***Substance Use***. Alcohol use (ever use) was higher among the nondisabled students (92%) than among the disabled students (83%). Use levels among the nondisabled were also higher (59% once a week or more vs. 36%).

Although 18% of disabled students took illicit drugs, compared with 20% of the nondisabled, the difference was not significant. Marijuana was the most commonly reported illicit drug used (16% among the disabled students, 21% among the nondisabled). More frequent patterns of illicit

use (once a week or more) were reported by the disabled students than the nondisabled students (8% vs. 4%).

Both groups said they were very unlikely to use prescription drugs along with alcohol or with illicit drugs. A significantly larger proportion of the disabled students reported that they were taking some type of medication (47% vs. 28%). Fifteen percent of the disabled students said they would try to obtain a prescription from another physician if their attending physician took them off their medication.

Attitudes. Opinions on the acceptability of taking illicit drugs and drinking alcohol did not differ significantly, although the disabled students tended to be more negative. When asked if they believed that there was a drug problem in the disabled population, 8% of the disabled students answered yes. When asked the same question about the general student population, 19% of the nondisabled students said yes. Similar questions about alcohol elicited a yes response from 5% of the disabled students and 46% of the nondisabled students.

Conclusions. Drug and alcohol use in these groups of disabled and nondisabled students were similar. But perceptions of problems differed: disabled students believed that the disabled community experienced few problems with alcohol and drugs, whereas the nondisabled students more readily acknowledged drug and alcohol problems in the general population.

DUFOUR, MARY C.; BERTOLUCCI, DARRYL; COWELL, CAROL; STINSON, FREDERICK S.; AND NOBLE, JOHN. 1989. Alcohol-related mortality among the disabled: The Medicare experience 1985. *Alcohol Health and Research World* 13(2):158-161. 7 refs.

Alcohol-related morbidity among Medicare enrollees discharged from hospitals in 1985--both the general population and the disabled population--are reported. The data are not representative of all disabled persons, but they do include all disabled persons enrolled in the Social Security Disability Insurance Program. Since 70% of the disabled Medicare enrollees were between 45 and 64 year old, the comparison data from the general population were confined to that age group.

Findings. In the general population, the rate of alcohol-related diagnosis of short-stay hospital discharges was 31.2 per 10,000 population age 14 and over. The rates of alcohol-related discharges among disabled patients were more than double those in the general population of discharges. For any alcohol-related diagnosis, the rate was 93.4 per 10,000 population among disabled discharges, but only 44.2 among the general population of discharges (ages 45-64). For alcohol-dependence syndrome, the rates were 59.1 and 28.1, respectively; for alcoholic cirrhosis, 11.1 and 4.6, respectively.

Conclusions. The results of this study clearly indicate that a high-level of alcohol-related morbidity exists within the disabled community. It is likely that the data, which is based on hospital discharges, underestimate the actual extent of alcohol problems among people with disabilities.

EDGERTON, ROBERT B. 1986. Alcohol and drug use by mentally retarded adults. *American Journal of Mental Deficiency* 90(6):602-609. 30 refs.

An ethnographic study of four disparate mentally retarded adult populations was conducted to determine the extent and effects of substance abuse among people with mental retardation. Using self-report, arrest, and treatment data, in addition to ethnographic data obtained over a period of several years, the study included various aspects of work, self-maintenance in everyday activities, family relationships, and leisure as well as alcohol and drug use and deviant behavior such as criminality. Sample 1 consisted of 48 white, middle-class candidates for independent living; Sample 2, 40 independently living persons; Sample 3, 45 black inner-city residents; and Sample 4, 48 persons first released from a large state hospital in the 1950s.

Findings. ***Sample 1***: Only 4 of 26 women and 4 of 22 men in the sample used alcohol or other drugs at all. Of the 22 abstinent women, 12 had parents, close relatives, or friends who used alcohol or other drugs, while 14 did not. Similarly, 12 of the 18 abstinent men had friends or family who used substances, while 6 did not.

Sample 2: Although all persons in this sample had access to alcohol, none of the women and only 2 of the men had ever used it. Many in the sample had no knowledge of drugs or lacked money to buy street drugs, but 3 women and 2 men did use marijuana, although only one woman did so frequently. Among those who used alcohol and marijuana, no one reported experiencing adverse physical or social effects.

Sample 3: Despite extreme exposure to alcohol and polydrug use among friends and family as well as violence in and out of the home, 18 women and 12 men out of the 45 persons sampled used neither alcohol nor drugs, while 2 women and 4 men were only light and infrequent

drinkers. Of the 9 persons who drank and used drugs moderately or heavily, only 2 had been involved in alcohol- or drug-related crime or deviance.

Sample 4: Three successive studies were conducted on this group. In the 1960-1961 study, 20 of 28 women and 13 of 20 men used no drugs or alcohol. In the 1972-1973 study, most of the 15 who had used drugs and alcohol moderately to heavily had reduced their usage. Finally, in the 1982 study, no one was used drugs, and only one person drank more than an occasional beer.

Conclusions. Although most of the persons in this study either had ready access to alcohol and other drugs or were closely associated with substance users, the majority were not users and did not engage in use-related deviant behavior. Socialization practices, in which mentally retarded persons were discouraged from substance abuse by negative example or by positive reinforcement for abstinence, may account for these abstinence patterns, although the entire phenomenon is far more complex. Of those who did use drugs and alcohol, few became dependent or engaged in socially unacceptable behavior.

FRISBIE, JAMES H., AND TUN, CARLOS G. 1984. Drinking and spinal cord injury. *Journal of the American Paraplegia Society* 7(4):71-73. 6 refs.

To determine the rates and causes of alcohol use and remission from drinking among people with spinal cord injury (SCI), 137 male patients (average age 50 years) were asked to indicate the amount of alcohol consumed before, on the day of, and subsequent to their injuries. A "drinker" was identified as someone who consumed at least one drink per day for at least a year. Remission was considered in effect if a patient had abstained from alcohol for at least one year by the time of the study or had reduced alcohol consumption by at least two-thirds for the same period.

Findings. Of the 137 patients sampled, 101 (74%) were found to be drinkers and 94 (68%) had been drinkers prior to injury. Of the pre-injury drinkers, 39 (28%) had been drinking on the day of their injury, consuming an average of six drinks. Beer was the preferred beverage among 75% of the drinkers, with harder drinks averaging no more than 10% use. Following SCI, 15 patients either began (7) or increased (8) alcohol consumption, 8 within the first year after injury (although at the time of the study, 9 of the 15 had stopped or reduced consumption). Of the 45 (18%) patients in remission from drinking, 33 had abstained and 12 had reduced their alcohol intake, 18 within the first year after injury. Overall, following injury, 6 patients had become drinkers or had increased drinking, and 45 patients had abstained or reduced their alcohol intake. Causes for remission were general and specific health considerations; advise from friends, relatives, or doctors; disability reasons; a loss of the taste for alcohol as a result of prolonged hospitalization; and socioeconomic considerations.

Conclusions. SCI patients who are drinkers usually had been drinkers prior to injury. However, the first-year remission rate (18%) found in this study suggests that SCI profoundly influences remission. Also effective was advice from friends, relatives, and physicians, as well as extended hospitalization. Thus, two therapeutic approaches suggested from this study would involve understanding the connection between SCI and alcohol consumption and the use of extended, enforced abstinence.

HEINEMANN, ALLEN W.; KEEN, MARY; DONOHUE, ROBERT; AND SCHNOLL, SIDNEY. 1988. Alcohol use by persons with recent spinal cord injury. *Archives of Physical Medicine and Rehabilitation* 69(8):619-624. 19 refs.

Interviews with 103 persons with recent spinal cord injury elicited detailed information on drinking history, prevalence of alcohol abuse, and consequences of alcohol use. Consecutively admitted patients to a rehabilitation facility who met the following criteria were asked to participate in the study: (1) being between ages 13 and 65, (2) being cognitively intact, (3) having been injured within the past 12 months, and (4) English speaking. The final sample had an average age of 27.7 years (range from 16 to 63); 79% were male. Two-thirds (65%) were quadriplegic.

Findings. ***Alcohol Use***. Nearly all (95%) of the subjects said they had used alcohol at some time. Over the six months prior to injury, the average quantity of alcohol consumed during the weekday was 5.9 drinks, with a range of one to 24 drinks. The median frequency of alcohol use was one to two times per week.

Drinking Problems. Subjects reported an average of 2.2 drinking problems, with the most frequently reported adverse effects being driving problems (39%), fatigue (38%), problems thinking (35%), and losing control over the amount used (32%). The mean score on the Michigan Alcoholism Screening Test (MAST) was 6.8; the usual cutoff score indicating problematic alcohol use is 5.0. Nearly half of the subjects had scores equal to or exceeding the cutoff. Nonetheless, only 13% stated that they believed they needed

help because of their drinking. Only five patients had been identified by their attending physician as being alcoholic.

Conclusions. A significant number of persons with recent spinal cord injury have a history of heavy drinking and experience problems resulting from alcohol use. Assessment of alcohol use and alcoholism should be a routine part of the intake procedure in rehabilitation programs for persons with spinal cord injury. Training programs for alcoholism treatment personnel should be established to acquaint them with accessibility needs, functional abilities, and attitudes toward persons with disabilities.

HEINEMANN, ALLEN; DOLL, MATTHEW; AND SCHNOLL, SIDNEY. 1989. Treatment of alcohol abuse in persons with recent spinal cord injuries. *Alcohol Health and Research World* 13(2):110-117. 21 refs.

In a study to determine the extent to which traumatic injury patients recognize and seek out treatment for alcohol abuse, 103 spinal cord injury patients at the Rehabilitation Institute of Chicago were interviewed for demographic and drinking-related information. Patients were asked about their rate of alcohol use, problems resulting from drinking, perceived need for treatment, and actual receipt of treatment from 6 months prior to 18 months after their injury.

Findings. Of the 103 patients interviewed, 49 (65%) had drinking problems before injury (Type A), 4 (6%) began drinking after injury (Type B), and 20 (29%) reported no drinking problems at all. More than half (55%) of Type A drinkers had been intoxicated at the time of their injury and continued to drink at higher rates than Type B drinkers after injury. While the proportion of heavy drinkers declined from pre- to post-injury, two-thirds continued drinking 18 months after injury.

While 71% of participants reported one or more social or physical problem related to alcohol, only 15% of the entire sample had sought out treatment and only 11% reported receiving treatment. The proportion of patients reporting drinking problems fluctuated from 65% before injury to 17% six months after injury to 24% the following year. Also, the proportion of patients seeking and receiving treatment declined significantly from pre- to post-injury.

Conclusions. There was little or no correlation between drinking behavior and spinal cord injury aside from the intervention possibilities made possible by the patient's immobility and hospitalization. Since most pre-injury alcohol abusers continue drinking heavily, successful rehabilitation requires consideration of family and personal drinking history.

HEINEMANN, ALLEN W.; GORANSON, NANCY; GINSBURG, KAREN; AND SCHNOLL, SIDNEY. 1989. Alcohol use and activity patterns following spinal cord injury. *Rehabilitation Psychology* 34(3):191-205. 30 refs.

In a study exploring the relationship between predisability alcohol use and subsequent activity patterns, 103 patients of the Rehabilitation Institute of Chicago suffering from recent (with past two months) spinal cord injuries were interviewed for biographic information, family history of alcohol abuse, and drinking history. Respondents were asked to report the frequency and quantity of alcohol use prior to injury, the problems associated with alcohol use, and their activity patterns during hospitalization.

Findings. Patients with a history of high levels of drinking were more likely to have been intoxicated at the time of their spinal cord injuries than were patients with more moderate drinking histories, regardless of age, gender, or family history of drinking problems. Patients with predisability drinking problems spent more time in quiet activities and recreation than in sleeping and resting, and often avoided rehabilitation, vocational, and educational activities during hospitalization. These patterns may be a product of low self-esteem associated with alcohol use or with delayed withdrawal symptoms of drinkers abstaining during hospitalization. At the same time, there is evidence that drinking patterns may continue during hospitalization.

Conclusions. It is vital that patients with predisability alcohol problems be identified so that a proper program may be developed or attendance increased at existing ones. Further research into the relationship between alcohol abuse and activity patterns among those with spinal cord injuries would be very helpful in treatment planning and community reintegration.

HUANG, ALLEN M. 1981. The drinking behavior of the educable mentally retarded and nonretarded students. *Journal of Alcohol and Drug Education* 26(3):41-50. 39 refs.

This was the first study to examine drinking behavior in educable mentally retarded (EMR) students. It compared their drinking behavior with that of nonretarded students and analyzed the sociocultural factors related alcohol use in the two groups. The EMR sample consisted of 190 students from special education classes in 12 high schools in three Alabama school systems.

The comparison group consisted of 187 nonretarded students randomly chosen from the high schools in the same school systems. The questions on the instrument were tape recorded; subjects in each group responded after listening to each question.

Findings. ***Alcohol Use.*** The two groups exhibited significant differences in the prevalence of alcohol use. Nearly a third (32%) of the EMR students reported drinking alcohol at least twice during the year prior to the survey, compared with 59% of the nonretarded students. These percentages were lower than those found in earlier surveys of adolescent alcohol use, which is probably explained by the southern location of the schools.

Drinking Patterns. No significant differences were found in age at first use, although EMR students began use later than nonretarded students (13.9 years vs. 12.5). Neither was the source of first drink significantly different, with friends being the main source for both groups. Differences in frequency of use were significant, however, with EMR students being more likely to drink once a week or more. The usual location of drinking was similar in both groups, either at home or at a friend's home.

Reasons for Use. The reasons for use given by the EMR students and the nonretarded students were as follows: for pleasure (21% for EMR students vs. 54% for nonretarded students), with parents for celebration (36% vs. 50%), have reached the age to drink (24% vs. 2%), friends drink (31% vs. 20%), to avoid being laughed at (14% vs. 6%), and to be with the crowd (22% vs. 15%). These results suggest that EMR students are more influenced by peer pressure than nonretarded students.

Conclusions. This study found few significant differences between EMR students and nonretarded students in a southern school population, with both groups reporting prevalence rates lower than the national average. Limitations of the study included the small sample, the nonrandom selection of the EMR students, and the possible difficulty of the younger EMR students understanding the questions.

ISAACS, MORTON; BUCKLEY, GERY; AND MARTIN, DONNA. 1979. Patterns of drinking among the deaf. ***American Journal of Drug and Alcohol Abuse*** **6(4):463-476. 18 refs.**

Deaf persons (n=39) who were functioning normally within the general community in Rochester, New York, were surveyed regarding their alcohol use, with the results being compared with those gathered in the general population of a similarly sized city in western New York. The questionnaire had been used in previous surveys, but was modified for the deaf subjects. The questions were asked using American Sign Language or Signed English. For all of the subjects, hearing loss occurred by age 10, with 46% having had their hearing loss from birth and 13% from before age 2.

Findings. Virtually all (95%) of the subjects were at least occasional drinkers of alcohol. The subjects fell into the following drinking categories based on the quantity, frequency, and variability of the drinking: abstainers, 10%; infrequent drinkers, 5%; light drinkers, 46%; moderate drinkers, 23%; and heavy drinkers, 15%.

One-fourth of the drinkers said they had gotten "high" four or more times a year, whereas 28% reported that they had never been high. A large majority of the drinkers (62%) said they had never been drunk, whereas 8% said they became drunk four or more times a year. Nearly half (46%) reported having experienced at least once hangover, 16% reported having had four or more. Driving after drinking too much at least once was reported by 46% of the drinkers.

The deaf sample did not differ from the comparison sample in drinking patterns, except in drinking more wine more frequently. Heavy use of alcohol by the deaf subjects was significantly correlated with reported frequency of driving after having consumed too much, age of first drink, ever having been drunk, feeling guilty over drinking too much, and being criticized by others for drinking. Drinking patterns were not related to the age of onset of deafness.

Conclusions. On the basis of this study, it is evident that deaf persons who live in the community have similar patterns of drinking as the hearing population. It is therefore likely that the extent of alcohol problems in the deaf population are equivalent to those in the hearing population. At the time the study was conducted (late 1970s), no deaf person in Rochester had been provided help with alcoholism within the memory of any persons contacted by the authors. Possible reasons for this include the reluctance of the deaf community to be labeled "deaf and drunk," lack of knowledge of community resources, lack of trained personnel in alcoholism agencies, and inadequate alcohol education in schools for the deaf.

KAWAGUCHI, RAY, AND BUTLER, EDGAR W. 1982. Impairments and community adjustment of young adults: Alcohol use, drug use, and arrest. *Chemical Dependencies: Behavioral and Biomedical Issues* 4(3):209-219. 5 refs.

As part of a longitudinal survey of the community adjustment, 391 impaired persons and 407 nonimpaired persons who had originally been interviewed in 1963 were reinterviewed in 1974 when they were between 20 and 26 years of age. Persons with impairments fell into one of five groups: physical (68), emotional (59), intellectual (22), developmental (136), and multiple (106). The "deviant" adjustment of impaired persons was compared with that of nonimpaired persons regarding alcohol use, drug use, and arrests. (Results for arrests are not reported here.)

Findings. ***Alcohol Use.*** There were no significant differences between the impaired and nonimpaired respondents with respect to prevalence of use, the amount consumed, the frequency of use, or the negative consequences of use. Within the impaired groups, however, significant differences in drinking behavior were found, although no one group was consistently high or low. The emotionally impaired had the highest percentage of drinkers (87.7%) and the highest percentage of frequent drinkers (at least weekly; 50.9%). By comparison, the physically disabled reported the lowest percentage of use (67.6%) and the lowest percentage of frequent drinkers (33.8%). This group, however, had the second highest level of trouble (8.8%). The developmentally impaired had the second highest percentage of drinkers (84.4%), the highest percentage of moderate or heavy drinkers (21.4%), and the most problems with drinking (9.6%). Both the intellectually impaired and the multiply impaired tended to fall in the middle on the various drinking measures.

Other Drug Use. A significantly greater percentage of the impaired respondents had taken drugs (any type) than the nonimpaired respondents (49.6% vs. 41%). For each specific drug (barbiturates, tranquilizers, amphetamines, marijuana, hallucinogens, narcotics), equal or greater percentages of the impaired than the nonimpaired had taken the drug. Differences for specific drugs, however, were not significant, nor were comparisons of quantity or troubles associated with drug use.

There was no consistent pattern of drug use among the five impaired groups. As with alcohol, the emotionally impaired had the highest percentage of both overall use and use of specific drugs, except for amphetamines and narcotics (second highest level for each). By contrast, the emotionally impaired had the second lowest percentage of heavy drug users. The physically impaired ranked lowest with respect to use of marijuana and hallucinogens, but highest for amphetamines and narcotics; they also had the highest percentage of problems with drugs (17.6%), compared with the average of 11.5%. The developmentally impaired had the lowest percentage of barbiturate use, but their use of other drugs was higher than that of the nonimpaired.

Causal Factors. The 5 impairment categories and 19 other demographic, psychological, and sociological variables were examined, by means of multiple regression techniques, for their relative contributions to explaining the levels of alcohol and drug use. Impairment status by itself explained very little of the variance in levels of drinking and drug use, but the addition of the 19 variables increased significantly the amount of variance accounted for. Only some of the variables, however, made significant contributions to explaining the variance in use levels. For alcohol, being female and being an ethnic minority were significantly associated with lower use, whereas having a police record and being older were associated with higher alcohol use. For drugs, those who were female and those who had been "labeled" by an agency were less likely to report high levels of use. By contrast, high levels of drug use were associated with having a police record and being rated "bright" and "obedient."

Conclusions. Compared with nonimpaired individuals, those who were impaired were more likely to have "deviant" levels of alcohol and drug use, but there was variation among the different impairment categories. The clearest patterns were evident among the emotionally impaired and the developmentally impaired. The emotionally impaired had high percentages of light and moderate alcohol use and a high percentage of involvement with a variety of drugs, but few reported heavy use of either alcohol or drugs. While the prevalence of alcohol and drug use among the developmentally impaired was low, those who did use did so at high levels.

KIRUBAKARAN, VELLORE R.; KUMAR, V. NANDA; POWELL, BARBARA J.; TYLER, ALAN J.; AND ARMATAS, PHILIP J. 1986. Survey of alcohol and drug misuse in spinal cord injured veterans. *Journal of Studies on Alcohol* 47(3):223-227. 12 refs.

The extent of alcohol and drug misuse in veterans with spinal cord injuries was studied in a questionnaire survey of 2,000 randomly selected members of the Paralyzed Veterans of

America organization; 992 returned questionnaires were usable for analysis. The majority of the respondents were 50 years of age or older, white men, married, unemployed, living in an urban community, and living with their families. Paralysis was attributed to automobile or motorcycle accidents (32%), gunshot wounds (20%), sports accidents (10%), and unspecified injuries related to combat or military service (38%).

Findings. ***Psychotherapeutic Drug Use***. Of the respondents, 28% were taking no medications, 42% were taking one or two prescription medications each day, and 6.5% took five or more medications each day.

Alcohol Use. As regards alcohol use, 75% had used alcohol at least once; of these, 85% were currently using alcohol. The majority of alcohol users (85%) indicated regular use of alcohol before the spinal injury.

Other Drug Use. Recreational drug use was reported by 11%; of these, 34% were current users. Contrary to the findings regarding alcohol, 75% of current drug users did not begin using drugs until after the injury.

National Comparison. Compared with a national sample of adults, alcohol use was about 20% lower and recreational drug use was dramatically lower in the spinal cord injured group. In the national sample, use ranged from 20% for marijuana to 1% for heroin, whereas in the spinal cord injured sample, less than one percent reported use of any drug, which may have been due to the older age of the respondents (most over 50).

Related Problems. Responses to a modified CAGE questionnaire for alcohol and other drug use indicated that about half of the users of either substance believed that they should cut down on use, and about one-third of each group felt guilty about their substance use. For respondents who acknowledged both alcohol and drug use, significantly fewer reported less guilt and criticism from others due to their drug use than to their alcohol use. About one-fourth of each group indicated that alcohol or drug use had caused problems in their lives, but only a small number had been actively treated for substance abuse.

Conclusions. The findings of the study are limited by the unrepresentativeness of the sample. Nonetheless, alcohol and drug use was found to be considerably less than in the general population, despite the supposed vulnerability of spinal cord injured persons to substance abuse. Some respondents indicated that the injury had motivated them to stop or reduce their alcohol use. For those who used drugs, however, use was more likely to begin after the injury.

KRISHEF, CURTIS H. 1986. Do the mentally retarded drink? A study of their alcohol usage. *Journal of Alcohol and Drug Education* 31(3):64-70. 8 refs.

As more and more mentally retarded people are living in the community as a result of deinstitutionalization, their access to alcohol and other drugs becomes greater, as does their risk of abuse as a result of the stresses associated with living on in the community. To explore this problem, alcohol use and related problems were studied in 214 mentally retarded persons living in Florida. Fifty-four percent of the subjects were male, and 46% were female. Seventy percent were white, and 30% were black. Most of the respondents (86%) were between ages 18 and 45, with the largest percentage (43%) being between 21 and 30. Just over half (53%) were living with their families, 39% in group homes, 5% in independent living arrangements, and 3% in foster care programs.

Findings. ***Alcohol Use***. Slightly more than half (52%) reported that they consumed alcohol at some time in their life. Within this group of drinkers, 62% were males, and 38% were females; 73% were white, and 27% were black. Two-thirds (66%) were aged 20 to 35 years. The living arrangements of those in the drinking subgroup were similar to those of the entire group.

Drinking Patterns. Beer was consumed by 62%; wine by 24%; and mixed drinks by 14%. As for frequency of use, 9% drank daily, 30% weekly, and 61% once a month or less. When they drank, 41% consumed only one drink; 27%, two drinks; 12%, three drinks; 6%, seven drinks; and 14%, eight or more drinks. The various locations of drinking were bars (33%), restaurants (20%), and at home (55%). A large majority (71%) of the drinking subgroup did not associate drinking with social activities and did most of the drinking alone.

Drinking Problems. Seven percent reported drinking on the job, and 2% had been in trouble and suspended because of this. For 13%, alcohol consumption caused interpersonal problems within the family: 47% of this group said their drinking caused fighting, 27% reported that there was disagreement in the family about their drinking, and 20% indicated that the family discord associated with their drinking was related to their medical problems. Seven percent of the drinking subgroup reported that they had been in trouble with the police because of their drinking. Only four subjects reported having been involved in some type of alcohol treatment program. About 20% of the drinkers had a medical problem for which they were taking prescribed drugs.

Conclusions. While the persons with mental retardation may be drinking more than might be expected, the findings of the study indicate that alcohol abuse is less prevalent than among the general population. Most drinking takes place at home rather than in bars, and much of it alone. The medication that mentally retarded persons take may place them at higher risk for alcohol abuse.

LOCKE, REGINALD, AND JOHNSON, SHIRLEY. 1981. A descriptive study of drug use among the hearing impaired in a senior high school for the hearing impaired. In: Schecter, A.J., ed. *Drug Dependence and Alcoholism. Volume 2: Social and Behavioral Issues*. New York: Plenum Press. pp. 833-841. 5 refs.

Owing to a significant void in research concerning substance abuse in the deaf community, a limited study designed to create base-line data was conducted involving 46 deaf students at a senior high for the hearing impaired. The study focused on identifying the characteristics of deaf substance abusers, the extent of substance abuse among the study participants, the kind of substances abused, and factors unique to deaf substance abusers. Participants were given a questionnaire to determine demographic, economic, social, and educational variables as well as drinking habits and drug usage.

Findings. A majority of the respondents (69%) currently and/or in the past drank alcohol, mostly in social situations or at home, and mostly beer and wine and occasionally whiskey. Also, a small majority (58%) of respondents had and/or were currently using drugs in social and isolated situations. The kinds of drugs used varied, but marijuana or hashish were most often used. All of the respondents who had used alcohol or drugs reported adverse long- or short-term physical effects (sleepiness or sluggishness; difficulty in controlling impulses; prolonged nervousness or anxiety; relaxation and reduction of tension).

Conclusions. In general, the deaf community has been neglected by the substance abuse industry. More federal money needs to be allocated for drug abuse programs specifically geared for the deaf community. At the same time, owing to communication and mental health difficulties specific to the deaf, schools and local communities could be extremely useful in addressing the problem of substance abuse among the hearing impaired.

MALEC, JAMES; HARVEY, RICHARD F.; AND CAYNER, JAY J. 1982. Cannabis effect on spasticity in spinal cord injury. *Archives of Physical Medicine and Rehabilitation* 63:116-118. 6 refs.

In a study to examine the perceived effects of cannabis use on spasticity in spinal cord injury patients, 43 such patients were mailed questionnaires and asked basic demographic information such as age, sex, marital status, education, and range of time since injury. They were also asked to indicate--in periods of one year before and after the injury--the extent to which they and people "they admire and identify with" used marijuana and whether they believed that their value systems corresponded to that of society as a whole. Finally, respondents were asked to indicate the severity of spasticity they experienced when using and not using marijuana.

Findings. Of the 43 respondents, 24 (53%) reported using marijuana during the past year. Current marijuana use correlated to past use and with use among people that the respondents "admire and identify with" currently and in the past. Younger patients were more likely to use marijuana than older patients. Generally, 21 (88%) of respondents reported a reduction in spasticity as a result of marijuana use. These reported reductions in spasticity could not be explained as a rationalization for marijuana use since the perceived reductions in spasticity were not correlated with variables related to marijuana use. Education was moderately correlated with reported changes in spasticity, with the greatest changes being reported by those with the least education. Nonetheless, most of the sample did have at least a high school education and many of these reported that marijuana use produced significant reductions in spasticity.

Conclusions. Further experimental studies are needed to measure changes in spasticity among spinal cord injury patients after marijuana use as well as to examine the relationship between the patient's knowledge of spinal cord injury and subjective estimations of changes in spasticity associated with marijuana use.

MEYERS, ALLAN R.; BRANCH, LAURENCE G.; AND LEDERMAN, RUTH I. 1988. Alcohol, tobacco, and cannabis use by independently living adults with major disabling conditions. *International Journal of the Addictions* 23(7):671-685. 12 refs.

In response to the uncertainty surrounding the prevalence of drug and alcohol abuse among the severely disabled, an 18-month study of use levels among 205 adults with major disabling

conditions was conducted between 1982 and 1985. Subjects were selected from independent living centers in the Boston and Worcester, Massachusetts. Study variables included subjects' alcohol, tobacco, and cannabis use; bed disability; and medical care utilization.

Findings. ***Use Prevalence.*** The mean number of cigarettes smoked per day was 16.9. Cannabis use at least once a month was reported by 25% of the respondents. The average number of alcoholic drinks consumed per day was 1.18. A third of the sample abstained from alcohol use, nearly two-thirds from cannabis use, and more than two-thirds from tobacco use. Only 1% of the respondents reported more than the median level of use of all three substances; 18% reported more than the median use of two or more.

Related Problems. In the analysis of the relationship between substance use and medical care utilization, it was found that the greater and more wide-ranging the substance use, the greater the rates of morbidity and utilization of health care services. But none of the relationships between scores on a scale of substance use and any of the measures of medical care utilization was significant. Substance abuse appeared to have limited consequences for short-term morbidity in this sample.

Conclusions. In general, the substance use patterns of this sample of independently living adults was moderate. Drug and alcohol abuse programs especially geared to the needs of people with disabling conditions should be made available in order to reduce morbidity and medical service utilization and the costs that go with them. However, as this study suggests, there is no need for a hasty reallocation of scarce resources toward a population that is not at high risk for drug and alcohol abuse.

MOORE, DENNIS, AND SIEGAL, HARVEY. 1989. Double trouble: Alcohol and other drug use among orthopedically impaired college students. *Alcohol Health and Research World* 13(2):118-123. 22 refs.

Contradictory findings concerning the prevalence of substance abuse among physically disabled youth prompted a study to determine the level of drug and alcohol use among 57 college students with orthopedic disabilities. Respondents were asked to report daily consumption patterns of non-prescription drugs and "problems" associated with use of these drugs such as hangovers, fights, injuries, and class attendance. Respondents also provided information on attitudes toward impairment, chronic pain level, sexual contacts, medication, thrill-seeking behavior, and perceived benefits of drinking.

Findings. Of all respondents, 40.3% used alcohol on a weekly or more basis, corresponding to general college levels; use of other substances, however, such as marijuana and cocaine, was significantly lower than that in the general college population.

Nine of the 11 respondents who reported a high incidence of "problem" substance use incurred their disability through trauma rather than congenitally, and 8 of the 9 trauma victims had used alcohol or drugs at the time of their injury. Problem drug use correlated strongly with thrill-seeking behavior, sexual activity level, and perceived benefits of drinking, a common finding among other college students. Students who were trauma victims had significantly higher problem use scores than students whose impairment was congenital.

In terms of medication, 84% did not believe they were over-medicated, yet 30% reported use of at least three prescribed medications concurrently and several displayed extreme ignorance about their medication. Furthermore, 44% of the respondents reported receiving no medical information on the connection between their disability and substance abuse.

Conclusions. While problem drug abuse occurs primarily among trauma victims, most substance use among orthopedically disabled college students is comparable to use among average high school and college student populations. However, few disabled students are aware of the connection between prescribed and illicit drug use. In order to design proper intervention strategies geared for the physically disabled substance abuser, further research is necessary in this area, particularly on substance abuse that predates impairment.

MOTET-GRINGORAS, CHRISTIANA N., AND SCHUCKIT, MARC A. 1986. Depression and substance abuse in handicapped young men. *Journal of Clinical Psychiatry* 47(5):234-237. 30 refs.

A group of 42 young disabled men and a demographically similar control group of 991 nondisabled men from the University of California, San Diego, were subjects of a study focusing on the rates of depression and substance abuse among disabled students and nonacademic staff. A highly structured questionnaire probed basic demographic characteristics, school and work history, alcohol and drug use patterns, psychiatric history, health, and family history of psychiatric disorders and substance use.

Findings. The results indicated a far higher degree of drug and alcohol abuse, as well as depression, among respondents with disabilities than among those without. Specifically, the disabled respondents had an earlier age at first drink, a higher level of continuous drinking for two or more days, and a greater number of citations for being drunk and disorderly.

Ever use of marijuana was reported by 87% of the disabled young men and 71% of the nondisabled; hallucinogens by 51% and 29%; amphetamines by 42% and 26%; barbiturates by 31% and 17%; opiates by 17% and 6%; and cocaine by 54% and 37%.

Similarly, relatives of the disabled men evinced significantly higher rates of substance abuse problems than relatives of nondisabled men.

Conclusions. These findings suggest the need for greater substance-abuse and psychiatric counseling for people with disabilities and their families than for other groups. Additional studies are necessary for the proper assessment of appropriate counseling approaches.

O'DONNELL, JAMES J.; COOPER, JONATHAN E.; GESSNER, JOHN E.; SHEHAN, ISABELLE; AND ASHLEY, JUDY. 1981-1982. Alcohol, drugs and spinal cord injury. *Alcohol Health and Research World* 6(2):27-29. no refs.

The extent of alcohol and drug involvement among people with spinal cord injury was studied in 47 patients treated at the Montebello Center Spinal Cord Unit in Baltimore. The sample consisted of patients who had been admitted for moderate or severe paraplegia or quadriplegia resulting from acute trauma. Causes of injuries were: traffic accidents (13), falls (8), diving accidents (7), gunshot wounds (7), and sports injuries (4). Information for the study was obtained from the patients, their families, early hospitalization reports, and clinical observation.

Findings. For nearly two-thirds (62%) of the patients, their injury was related to alcohol or drug use. Forty-one of the patients had a history of substance abuse prior to the injury. Also, although most patients discontinued drug and alcohol use during hospital stays, most resumed substance abuse later in the rehabilitation process, as physical mobility and social interaction increased.

Once physically active and daring prior to being disabled, many of these patients not only denied their substance abuse problems, but also continued their risk-taking behavior by abusing alcohol and drugs, knowing the life-threatening effects in connection with their disability. But this behavior was also a result of suicidal' depression, denial of the disability, and insufficient monitoring of the patients' behavior by relatives and staff.

Conclusions. The results of this study indicate that most patients with spinal cord injury have problems with alcohol or other drugs. Substance abuse education and treatment for patients and their families, as well as rigorous enforcement of drunk-driving laws, may help to curb the seldom discussed problem of substance abuse among spinal cord injury patients.

RASMUSSEN, GARRY A., AND DeBOER, RONALD P. 1980-1981. Alcohol and drug use among clients at a residential vocational rehabilitation facility. *Alcohol Health and Research World* 5(2):48-56. 9 refs.

The extent of alcohol and other drug use among the people with disabilities was studied in 1978 in a sample of clients (n=273) at Michigan's State Technical Institute and Rehabilitation Center. The mean age of the subjects was 26.3 years; a variety of disabilities were represented, with the largest being orthopedic (39%). In addition to a questionnaire that asked about use, attitudes, and knowledge about alcohol and drugs, data on medication were gathered from client records.

Findings. ***Alcohol Use***. Nearly half (48%) of the clients used alcohol regularly (12 or more times a year), with 23% consuming it more than once week. Solitary drinking, either sometimes or usually, was reported by 37% of the clients; the more often clients drank, the more likely they were to drink alone. Nearly two-thirds (62%) of the clients answered "yes" to at least one item on a 14-item questionnaire of alcoholism symptoms. This figure is significantly higher than the prevalence of problem drinking in the general population.

Medical Drug Use. Medical records indicated that 32% of the clients were taking medications from a physician for a chronic condition. In addition, 36% of the subjects stated that they used over-the-counter medications on a regular basis.

Illicit Drug Use. The most commonly used illicit drug was marijuana, with 36% having used it once and 29% regularly (six or more times a year). Regular use of other illicit drugs was less than 4%, with the exception of cocaine (6%).

Related Problems. Only 8% of the clients indicated that they had a drug or alcohol problem, although 25% said that there was a drug or alcohol problem at the center. Fifteen percent re-

ported that they had given some of their prescription medicines to someone else.

Conclusions. Although it is not clear how representative the subjects in the study were of the disabled population in general, the results did indicate that use of alcohol and other drugs, particularly marijuana, was higher than in the nondisabled population. Even though a large proportion of the clients showed at least one sign of alcoholism, their medical records seldom mentioned alcohol problems. Because substance use can interfere with rehabilitation, early identification of drug problems through an assessment-screening instrument is important. Prevention programs should provide accurate information about alcohol and drugs. More effective ways to deal with problems, which alcohol or drugs help to temporarily alleviate, also need to be provided.

SABIN, MARTHA C. 1988. Responses of deaf high school students to an "Attitudes Toward Alcohol" scale: A national survey. *American Annals of the Deaf* 133(3):199-203. 27 refs.

The preparation of effective alcohol prevention materials for hearing-impaired students requires knowledge of what adolescents believe about alcohol and how those beliefs compare with those held generally. To that end, students in 16 high schools for the hearing impaired located throughout the nation were administered an Attitudes Toward Alcohol questionnaire, which had been translated into sign language. The instrument consisted of 20 statements about alcohol, with the respondent indicating agreement or disagreement on a five-point scale. The sample consisted of 414 students, ranging in age from 13 to 21 years old; 56% were male, 44% female. Ninety percent were in residential schools. A little over half provided information on age of onset of deafness: 32% became deaf at birth, 14% prelingually, and 8% prevocationally.

Findings. Males expressed more positive attitudes toward alcohol than females; older students (18 to 21 years) also were more positive in their attitudes than were younger students. Students tended to agree that drinking is a sin and is a sickness; they also agreed that drunkenness was unacceptable behavior. These views conform to the attitudes found in the deaf community about drunkenness. Students did not, however, agree that drinking too much or drunkenness is a character weakness, a belief which is commonly held among deaf adults.

Conclusions. In general, hearing impaired students expressed attitudes toward alcohol that were less than positive. Their attitudes were similar to those found in studies of hearing students. Given these similarities in attitudes, prevention programs designed for hearing students could be adapted for use in schools for the deaf.

WESTERMEYER, JOSEPH; PHAOBTONG, THITHIYA; AND NEIDER, JOHN. 1988. Substance use and abuse among mentally retarded persons: A comparison of patients and a survey population. *American Journal of Drug and Alcohol Abuse* 14(1):109-123. 15 refs.

In order to correct the limited knowledge about substance abuse among people with mental retardation, this study examined substance abuse and associated problems among two populations: mentally retarded adults who had been identified by family or caregivers as having substance abuse problems (MR-SA subjects; n=40) and mentally adults who had no apparent substance abuse problems (MR controls; n=40). Subjects in both groups had mild retardation (IQ level 50-70, educable), with an average age of 32.2 for the subjects diagnosed with substance abuse and 30.6 for the control subjects. Interviews were conducted with each person in the study and with another person who knew about the person's life.

Findings. AOD *Abuse*. Of those who drank, drinking began at 17.5 years among the MR-SA subjects and at 20.5 years among the MR controls (a significant difference). The MR-SA subjects reported significantly greater lifetime use of alcohol, tobacco, cannabis, amphetamine, and cocaine. Similarly, MR-SA subjects endorsed various indicators of substance abuse (tolerance, loss of control over use, secretive use, hidden supply, etc.) significantly more often than did the MR controls.

Related Problems. Various psychological, family, and social problems associated with substance use occurred in 15%-80% of the MR-SA subjects, but in only 0%-5% of the MR controls. Significantly more MR-SA subjects than MR controls had been admitted to the psychiatric unit of a general hospital or a psychiatric state hospital.

Childhood Variables. Pathogenic features of childhood that differentiated the MR-SA subjects from the MR controls included chronic illness in the mother, substance abuse in the father, psychiatric disorder in the father, physical abuse, sexual abuse, and substance abuse in a sibling or in an aunt or uncle. MR-SA subjects also showed statistically significant differences with the MR controls on a variety of childhood problems (before age 18): vandalism, repeated intoxication prior to age 15, persistent violation of

home or school rules, truancy, sexual promiscuity, and suspension or expulsion from school.

Conclusions. Five out of the 40 (13%) MR persons not identified as having substance problems did provide some evidence of pathogenic substance abuse. The study indicated that mentally retarded persons who are substance abusers come from families in which parents, siblings, or aunts or uncles are also substance abusers.

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Appendix A.
SUBSTANCE ABUSE EDUCATION AND PREVENTION MATERIALS FOR STUDENTS WITH DISABILITIES

Prevention Time
Southeastern Virginia Planning District Commission
723 Woodlake Drive
Chesapeake, VA 23320
804/420-8300

"Prevention Time" is a substance abuse prevention curriculum for students in upper elementary and middle school with mild retardation and learning disabilities. The four major areas of focus are: drug information, understanding and accepting self, understanding self and others, and developing decision-making skills. The purchase price is $10.00.

LifeFacts 3--Substance Abuse
James Stanfield Publishing Company
P.O. Box 1995H
Santa Monica, CA 90406
800/421-6534; in California 213/395-7466 (collect)

To meet the needs of students with retardation, this curriculum gives basic drug awareness information and teaches refusal skills needed to cope with drugs in daily living situations. Nineteen lessons present basic information on chemical dependency and the dangers associated with substance abuse. All major substances with the potential of abuse are clearly identified, and the effects of each are plainly described. Pretest and posttests identify needs and measure growth. The purchase price is $149.00.

Prevention Curriculum Guide for Looking at Alcohol and Other Drugs--Special Education 7-12
Addiction Intervention with the Disabled
Sociology Department
Kent State University
Kent, OH 44242
216/672-2440

This curriculum guide includes 51 lessons and various vocabulary exercises and activities for students with mental retardation. The guide features PICTURE-TALK, an illustrated storyline that addresses issues and problems faced by high school students. The guide is designed to be used with the book *Looking at Alcohol and Other Drugs* (available for $37.00 from AID). People with and without disabilities are featured within the guide, presenting thought-provoking situations for the students. The purchase price of the curriculum guide is $30.00. (Materials for younger children are currently being published.)

Drugs and Decisions--A Prevention Program for People Who Are Developmentally Disabled
Milwaukee Council on Drug Abuse
1442 N. Farwell, #304
Milwaukee, WI 53202
414/483-3334

This program aims at developing self-awareness and problem-solving/decision-making skills in order to prevent drug and alcohol problems. With these skills, the student will be able to begin to make sensible choices regarding drugs and alcohol. The curriculum workbook is available for $25.00.

Me, Myself, and I!
Project Oz
404 E. Washington St.
Bloomington, IL 61701
309/827-0377

This program provides an innovative approach to education prevention of substance abuse among students with learning disabilities and mild mental retardation. It is specifically designed to assist participants in responding to and addressing the variety of issues, stresses, and problems they face in a productive and positive manner; presents materials and information in varying formats so as to stimulate the visual, auditory, and kinesthetic senses; uses materials that are mental-age appropriate; and assists professionals in effective methods of substance abuse prevention by dealing with the development of social competencies. The videotape is 16 minutes in length and is available on 1/2 inch VHS. The rental cost is $50.00 on a preview/rent-to-purchase agreement (if not purchased, $50.00 rental fee); the purchase price is $200.00.

A Special Message: A Comprehensive Drug Education Curriculum for Learning Disabled and Behavior Disordered Populations Grades 6-12; and
A Special Message: Parent Component
Project Oz
404 E. Washington St.
Bloomington, IL 61701
309/827-0377

The Project Oz curricula are grounded in the belief that presenting drug information alone is insufficient to prevent drug abuse. Thus, the curricula also included materials to promote coping skills. The lessons cover decision-making criteria so that students may learn to make safe, informed choices throughout their lives; development of positive self-esteem, assertive behavior, and self-confidence in order to respond to peer pressure; and stress management to copy with the tensions of school and home life and the approach of adult life. Information is presented on prescription medications commonly used with special education children, AIDS, cocaine/crack, fetal alcohol syndrome, and children of alcoholics. The cost of the student component is $150.00; the cost of the parent component is $40.00.

The Good Life: A Smart Choice
Linda Cherry
Institute for Alcohol, Drugs, and Disability
1034 Clubhouse Dr.
Hayward, CA 94541
415/786-2281

This booklet and tape for youth with hearing impairments, mental retardation, or reading difficulties provides a basic outline of drug education. Types of recreational drugs are described in terms of their psychological and physical effects. Special attention is given to alcohol and marijuana. Possible reasons for dug use are explored. These materials aim at preventing all recreational drug use through information on harmful effects. Eight pages, large type. The booklet is available for $1.00; the tape for $2.00.

Adapted from: National Center for Youth with Disabilities. 1990. *Substance Use by Youth with Disabilities and Chronic Illnesses*. Minneapolis, Minn.: National Center for Youth with Disabilities.

Appendix B.
PROGRAMS AND ORGANIZATIONS

The following programs and organizations are those that, by their title, focus specifically on substance abuse and disabilities. The list was gathered from printed sources examined in the course of preparing this Update and thus undoubtedly omits other programs and organizations that provide substance abuse services to people with disabilities. The items are arranged by state and then by program title.

CALIFORNIA

Alcohol Project for the Deaf
1428 Bush Street
San Francisco, California 94109
(415) 775-5700

American Association on Alcohol, Drugs and Disability
Contact: Carolyn Forbes
c/o Department of Health
P.O. Box 11867
Fresno, California 93775
(209) 445-3272

Congress on Chemical Dependence and Disability, Inc.
15519 Crenshaw Blvd., Suite 209
Gardena, California 90240
(213) 679-9126

Institute on Alcohol, Drugs, and Disability
2165 Bunker Hill Drive
San Mateo, California 94402
(415) 578-8047
Publishes *The Seed* (Quarterly)

Silent Sobriety Foundation
444 Lincoln Blvd., Suite 318
Marina del Rey, California 90291
(213) 399-6781

DISTRICT OF COLUMBIA

Contact Registry of Interpreters for the Deaf
P.O. Box 1339
Washington, DC 20013

ILLINOIS

Project Oz
404 E. Washington Street
Bloomington, Illinois 61701
(309) 827-0377

Special Project on Prevention and Disabled Students
Prevention Resource Center
901 South Second Street
Springfield, Illinois 62704

KANSAS

Kansas Workshops on the Disabled
Kansas Association of Alcohol and Drug Program Directors
Kansas Consortium
P.O. Box 4052
Topeka, Kansas 66604

Substance Abuse Prevention Program
Kansas School for the Deaf

MASSACHUSETTS

Project for the Deaf
Cape Cod Alcoholism Intervention and Rehabilitation Unit
P.O. Box P
Pocasset, Massachusetts 02559
(617) 563-7101

MICHIGAN

Addictions/Deafness Training Program
Hurley Medical Center
Flint, Michigan

MINNESOTA

National Resource Library on Youth with Disabilities
National Center for Youth with Disabilities
Adolescent Health Program
Box 721
University of Minnesota Hospital and Clinic
Minneapolis, Minnesota 55455
(800) 333-6293

Minnesota Chemical Dependency Program for Hearing Impaired Youth
Riverside Medical Center
1400 E. 24th Street
Minneapolis, Minnesota 55404

OHIO

Ohio State Conference on Drug Abuse and Disabilities
(614) 466-7893

Project AID (Addiction Intervention with the Disabled)
Department of Sociology
Kent State University
Kent, Ohio 44242
(216) 672-2440 (voice)
(216) 672-2451 (TTY)
Publishes *AID Bulletin* (Quarterly)

NEW YORK

Alcohol and Drug Education Program
Rochester School for the Deaf
Rochester, New York

Chemical Dependency Services
International Center for the Disabled
220 East 23rd Street, Suite 509
New York, New York 10010
(212) 481-5780

Substance and Alcohol Intervention Services for the Deaf
50 West Main Street, Room 215
Rochester, New York 14614
(716) 262-2705 TDD
(716) 475-4978

Substance Abuse Prevention Program for the Mentally Retarded
Research Institute on Alcoholism
1021 Main Street
Buffalo, New York 14203
(716) 887-2566

Substance Abuse Program
New York Society for the Deaf
344 East 14st Street
New York, York 10003
(212) 673-6500

SOUTH CAROLINA

Spartanburg Alcohol and Drug Abuse Commission
Prevention Program for the Hearing Impaired
P.O. Box 1251
Spartanburg, South Carolina 29304

WASHINGTON

Substance Abuse Prevention Program
Washington State School for the Deaf

Appendix C.
REFERENCES BY SUBJECT

In order to help the reader find references on specific types of literature and disability, the citations listed in the main bibliography have been grouped under the following categories: Bibliographies, Literature Reviews, Mobility Impairment, Hearing Impairment, Visual Impairment, Developmental Disability, Learning Disability, and Multiple Disabilities and General Articles. Citations that have been abstracted for this Update are marked with an asterisk (*).

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Visual Impairment

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Williams, Ronald W. 1990.

NORTHWEST REGIONAL EDUCATIONAL LABORATORY

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The Northwest Regional Educational Laboratory (NWREL) is an independent, nonprofit research and development institution established in 1966 to help others improve outcomes for children, youth, and adults by providing R&D assistance to schools and communities in providing equitable, high quality educational programs. NWREL provides assistance to education, government, community agencies business, and labor by:

- Developing and disseminating effective educational products and procedures
- Conducting research on educational needs and problems
- Providing technical assistance in educational problem solving
- Evaluating effectiveness of educational programs and projects
- Providing training in educational planning, management, evaluation, and instruction
- Serving as an information resource on effective educational programs and processes, including networking among educational agencies, institutions, and individuals in the region

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